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Linguistic Landscape of Arabs in New York City: Application of a Geosemiotics Analysis

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Abstract: The investigation of linguistic landscapes (LL) among the Arab community in downtown Brooklyn, New York City, is an underserved public space in the literature. This research focused on social and commercial or 'bottom-up signs' in LL to understand their purpose, origin and target audience. Drawing upon discourse analysis, the study was conceptualized according to the principles of border theory and geosemiotics. The latter was used to analyze the data, which consisted of random photographs of shopfronts in Brooklyn taken with a digital camera during the summer of 2016. The three semiotic aggregates used for analysis consisted of interaction order, visual and place semiotics. The data analysis showed the multi-layered nature of LL in this urban community and the subjectiveness of spatial borders through a combination of text and symbolic imagery. The paper highlights the importance of commercial signs in the LL among ethnic minority communities.

Keywords: Arabs; border theory; discourse analysis; geosemiotics; multilingualism; signage

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1. Introduction

Linguistic landscape (LL) forms part of a new branch of linguistics that combines sociolinguistics and applied linguistics. It refers to the 'spatial manifestations of language use on public signs including billboards, street signs and commercial signs' [1]. This definition draws from the early work of [2] and their hypothesis that LL served a dual function as both informative and symbolic [3]. Research on the contribution of LL in multinational cities such as New York City (NYC), Toronto and London is important in highlighting the visibility of minority migrant languages in public spaces. LL is also important in illustrating linguistic heritage among multilingual communities [4]. Signs written in the migrant language show the interconnection of global networks and their dynamic influences within their new space [5]. In this context, the study of LL prompts an examination of several considerations, such as the placement of the sign; the recipients of the message; the population for whom the sign is intended both as receivers and as initiators; and, finally, the content, specifically, what the sign displays and the manner of display. Therefore, LL also encompasses geosemiotics, namely, the public discourse that LL is shaped by the people who initiate, create, install and read these signs and the reasons behind these decisions.

LL also signifies the permeability and porousness of borders and the inability of states to regulate them in neoliberal global capitalism [6]. Accordingly, borders can be interminable and constitutive [7], despite being commonly understood as fostering social, geographical and political division. Accounting for mobility, symbolism and interpretation in LL introduces further complexities when the transfer of knowledge and the translocation of objects in this borderless space within these interactions are considered.

This paper attempts to ascribe meaning to the LL of commercial or bottom-up Arabic signs located in downtown Brooklyn, NYC. Scollon and Scollon's geosemioticism (2003) [8] and border theory [7] are used to conceptualise the research by helping to explain the identity of these signs, especially when the juxtaposition of texts and images is reminiscent of the homeland and suggests the subjectiveness of borders. The paper is organized as

follows: a brief background of Arab settlement in the United States is presented. Then, a literature review of multilingualism in the commercial LL is conducted, followed by the conceptual framework of geosemiotics and border theory, its method and results. A brief discussion concludes the section.

2. Literature Review

2.1. Yemen

In the earliest documented account of Arabs settling in the United States, emissaries of a King of Arabia arrived on Ocracoke Island, North Carolina, in the mid-19th century [9]. Their mission in coming to the New World was to spread Islam. In later years, Arab migrants to the US worked in different occupations as factory workers, labourers and salesmen, and in personal services such as barbering, tailoring and banking, although they were stereotyped as peddlers and tradesmen [9,10]. As time went on, the wave of migration to the US fluctuated due in part to international affairs (such as the World Wars) or border issues.

In this research, the population of interest originated from Yemen. The country borders Saudi Arabia in the north, Oman and the Arabian Sea in the east, the Gulf of Aden in the south and the Red Sea in the west (see Figure 1).

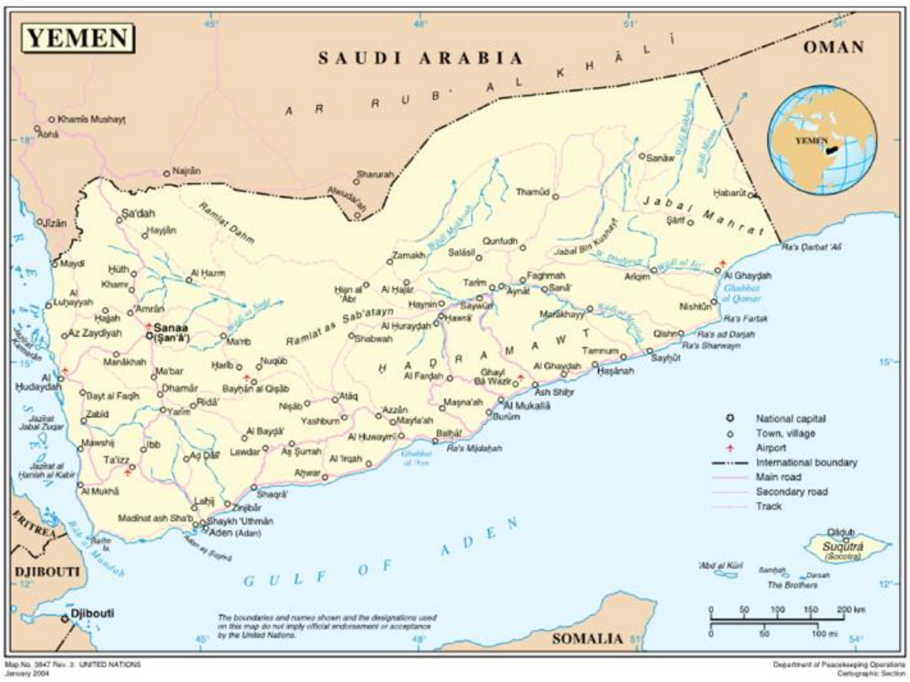

Figure 1. Map of Yemen (2004). Source: Map of Yemen. From Map No. 3847 Rev. 3 United Nations by the Department of Peacekeeping Operations Cartographic Section, January 2004 [11]. (accessed on 25 July 2022).

The Yemeni population is ethnically Arab and consists of Sunni and Shi'a Muslims. In 1949 and 1950, the population consisted mainly of Jews, Hindus and Christians, as a minority of Jews had migrated to Israel. The language spoken in Yemen is primarily Arabic, which derives from the Semitic language family. Culturally, Yemen, as Eudaimon Arabia (better known in its Latin translation, 'Arabia Felix'), means 'fortunate Arabia' or 'Happy Arabia'. Therefore, Yemen is now known as 'Happy Yemen', with its most notable architecture being the Yemen Gate or 'Bab Al Yemen', which is more than 1000 years old (see Figure 2).

Figure 2. 'Bab Al Yemen' or Yemen Gate.

The term 'Arab American' was first used in the 1960s. This period marked the second wave of immigration to America [9]. These new entrants were highly educated, spoke English and were more interested in assimilating with the resident population than in building ethnic neighbourhoods. This was especially true of the cities of Brooklyn and Detroit. Detroit ranked second in Arab American population growth after NYC's record 200,000 plus Arabic population [12]. The outcome of this migratory experience was the formation of Arab American groups whose goal was to unite all ethnically Arab individuals regardless of their original countries or regions. How could this be achieved with group members dispersed throughout the USA? Arab Americans commonly shared Islam as a religion and Arabic as a language. Most migrants in the diasporas still maintained close contact with Yemen, thus testing political perceptions of geographic borders. Technology was useful in promoting a symbolically borderless environment. This practice of assimilation highlights the importance of LL in the preservation of cultural heritage and the retention of cultural customs and norms among migrant groups. Moreover, the study of static signs, though considered outmoded, was important to draw attention to the interaction between text and images as it correlates to memories of Yemen and to map the ecological system of languages in the community [13].

2.2. Multilingualism and LLs

The world has become a melting pot of aggregate super-diversity, manifested in the multilingualism of diverse societies. The language choice of public signage has mapped ecological systems in urban settings in LL [14] and has usefully provided rich, multidimensional data about our world. In a survey on new linguistic diversity in Tokyo, [15] examined the dynamics of shop signs by asking the questions by whom and for whom? Thus, the audience and originators of each sign were interrogated, which had been translated into English, Korean and Chinese text.

Another main contributor to the work on LL was [16], who investigated the hegemony of Israel over Arabs in the Israeli community to show the effects of English as a global language. In their quantitative study, they quantified Hebrew and Arabic signs and demonstrated how the languages were represented. Other scholars have highlighted the significance of visual methodologies to add depth to our understanding and interpretation of images in diverse settings [17]. While this research adopts similar methodologies, the emphasis is on 'giving voice' to the signage in an attempt to understand what it communicates about the community. Ref. [18] conducted similar research, although the population of LL was in Yemen and included commercial, social and government signs.

New York and its neighbouring states are home to one of the world's largest and most ethnically diverse migrant populations, prompting multiple scholarly, literary and other creative works. In a study on Washington, DC's Chinatown, for instance [19], examined billboard advertisements to reconstruct the narrative of Chinatown in Washington, DC, us-

ing a combination of text, visuals and ethnography. By employing three focal points related to place, material space, spatial representation and spatial practice, Lou contributed to the knowledge of the temporal and spatial LL of Chinatown by elaborating on its collective identity. Chinatown was chosen for its dynamism, vivacity and representativeness as an urban ethnic neighbourhood. However, Washington's Chinatown differed significantly from NYC's, where Cantonese was the preferred language of communication. Conversely, English was preferred in Washington, which made for a less authentic experience from a Chinese perspective. Based on Lou's study, place, time and practice can supply meaning for any LL where signs appear. The distinctiveness of a place stems from the difference that a place exhibits to distinguish itself from many other places. Such a place could be representative of a certain ethnic group or community. For instance, in certain neighbourhoods in Detroit with high Arab American populations, semblances of LL demarcate the bilingualism of the community. LL also highlights the political, economic, social and other phenomena as evident in places where the Arabic language interacts with English to produce diglossia. According to [18], public bilingual signs also advertise businesses or products and signal the diversity of language and culture (see Figure 3).

Figure 3. A CVS pharmacy in an Arab neighbourhood of Dearborn, MI. Source: Image from 'Arab Americans in Metro Detroit: A Pictorial History' by A. Ameri and Y. Lockwood, 2001, Arcadia Publishing. Michigan, USA [20].

Sassen (2000) [21] labelled the large US cities as 'global cities' because globalisation depicted them as central and desired destinations for most people globally. While this sheds light on their power and impact, the resultant communities that emerge support Ben-Rafael et al., (2010) [16] current position about the dynamism, fluidity and ever-changing reality of space as communities transfer images and likeness to LL. Accordingly, globalisation has prompted a re-think of border studies [6] and the field's linkages with LL as it relates to multilingual communities. Kimura (2017) [22] mentions two types of borders: 'physical/material borders or in a wider understanding including conceptual/mental borders' (p. 46). Thus, when it comes to tracking a language around certain borders, it is indicated as ' demarcations based on ethnicity, language and culture, and to what extent they are understood in broader supra-national/transnational terms.' [23]. In this research, the two types are investigated as the physical border has been located through Google Earth. The conceptual/mental border has been pointed out in the discussion on signs.

Within the field of LL, migrant communities are ever-conscious of the process by which borders undergo several transitory points to their final destination. This mobility has prompted multiple works that examine borders as elements of defense that are more

exclusive than inclusive in their makeup. Nail (2016) [7], for instance, examines borders as attempted political and economic impediments, as evident in the US–Mexico impasse. Nail argued against the static border, perceiving it as a process of bifurcation that is continuously redirecting, socially mobile and a product of dominant social formations. Previously, Newman (2006) [24] observed that the cross-disciplinary characterisation of border studies, while facilitating interdisciplinary research, ran counter to the borderless argument that emanated from globalisation. However, Johansen (2018) [25] argued the plausibility of border theory in creating a 'third space', moving beyond binaries through the examination of the literature of China Miéville's Un Lun Dun, The City and the City and Embassytown. These works and the current research test the ambiguity of borders in an attempt to move beyond claims of exclusion but also consider the empowerment of migrant communities who have managed to repurpose, reclaim, redirect and circulate their points of access through LL.

The premise segues nicely with the study of geosemiotics, which is a combination of geographic and semiotic approaches. Geography is the science of the locations of lands and countries, whereas semiotics is defined by Chandler (2007) [26] as the theory and study of signs and symbols, especially as elements of language or other systems of communication. The geosemiotic approach embraces both concepts as, according to Scollon and Scollon (2003) [8], 'there is a social world presented in the material world through its discourses—signs, structures, other people and our actions produce meanings in the light of these discourses' (p. 1). Three geosemiotic subdivisions are deployed in the present analysis: (i) interaction order, which explains the relationship between the content and the message delivered to an audience. This concept is based on Goffman's (1981) [27] earlier work on (ii) visual semiotics, which concerns the visual appeal of a sign and investigates the story behind such an appeal and which is attributed to Kress and van Leeuwen (1996) [28]; and (iii) place semiotics, which relates to the place of a sign, namely, where it appears or is located [8]. There are two types of signs, as Gorter (2006) [29] identified these signs as 'top-down' or 'bottom-up'. Top-down were official signs installed by governments and public agencies and reflected 'the general commitment by the dominant culture' (p. 10). Conversely, 'bottom-up' signs were designed and displayed by unofficial individuals and reflected action 'much more freely . . . according to individual strategies' (p. 10), in this instance, entrepreneurship. Ben-Rafael et al., (2006) [16] added that 'LL analysis focuses at the same time on the simultaneous actions of institutions and autonomous actors which together give shape to the linguistics of the public space' (p. 26). These signs helped to position the location as an urban space and informed the specific principles of geosemiotics [8]. They also noted that the existence of these signs demonstrated the community's sanction by the existing governing administration. Discourse analysis demonstrated social action in place [30] but also the placement and position of the text.

These works gained a foothold from Lefebvre (1991) [31] and others who perceived space as created by humans to live their lives.

The Yemeni population is not well identified in the LL literature; hence, this study was instructive in contributing to the Arab migrant journey. I will attempt to respond to the specific questions:

(1) Who contributed to the Arab LL in downtown Brooklyn, and for whom were these signs designed?
(2) What are the semiotics of these signs?

3. Materials and Methods

In keeping with the geosemiotic framework, this research employed a discourse analysis approach to analyze social action related to place [30,32]. The methodologies of LL are rooted in disciplines such as language policy and urban sociolinguistics [33].

3.1. Data Collection and Setting

This examination of the LL of downtown Brooklyn included specifically a collection of photographs of 'bottom-up' or commercial and social signs in the public space. Downtown Brooklyn is the third-largest central business district in NYC and is located northwest of the borough of Brooklyn. It is a vibrant neighbourhood and consists of a mixture of commercial and residential buildings. It is home to a multi-ethnic, multilingual population reflecting centuries of migration. The data were collected over an 18-day-long summer vacation in NYC in 2016 and consisted entirely of photographs taken by the researcher [5]. Since no faces were captured, there were no ethical concerns about consent and privacy.

3.2. Data Collection Instrument and LL Variation

LL is strongly based on photography and visual analysis. A digital camera was used to capture the images, and a random sampling technique was applied to provide a wide range of signs. Although a larger corpus of photographs was taken, only these 18 commercial signs were analysed. Written data in English and Arabic were inserted in a table created in Microsoft Word. Scollon and Scollon's (2003) [8] geosemiotic approach was used for the analysis of the data using three criteria: (i) interaction order; (ii) visual semiotic; and (iii) place semiotic. Additional data-gathering techniques included observation and field notes, which helped with verification and recall. 'Triangulated data' collecting method was followed [34]. As the author obtained the data through what was seen, what was heard and what was observed (see Figure 4).

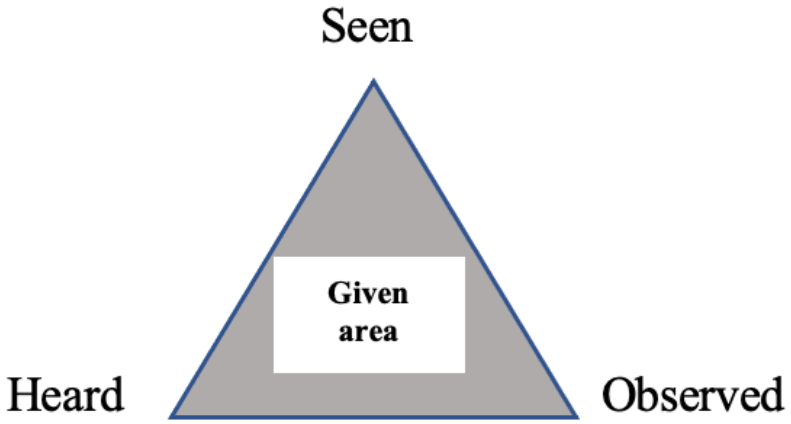

Figure 4. A triangulated data collection.

3.3. Data and Data Analysis

After taking the photographs, I sorted them to determine the best representation of signs based on three criteria: (i) interaction order; (ii) visual semiotic and (iii) place semiotic. Here, the focus was on unofficial signage such as commercial, advertising and gateway or 'bottom-up' signs.

4. Results

Scollon and Scollon (2003) [8] referred to geosemiotics as discourses in place; that is, the meanings of the shop, religious and commercial signs require some physical and social contextualisation. Accordingly, the data were analysed using the semiotic aggregate of:

- Interaction order
- Visual semiotics
- Place semiotics

It is perhaps instructive to mention the possibility of overlaps with these three components as they are all visual perspectives. All signs were professionally manufactured and affixed to the building.

4.1. Interaction Order

Interaction order involves social norms and the context of the language concerning their target audience [30]. The focus in interaction order is always on the 'Discourse in Place' [8]. That means the language on signs (displayed/seen) and language around signs (spoken/heard). In this research, it is what was displayed on the signs that was investigated. This leads to Reh's analysis of multilingual writing of the language on the sign in regard to its appearance and order. The first set of signs consisted of a storefront featuring a commercial sign with the place name and image of the Yemen Cafe and Restaurant (see Figure 5). A first glance indicates that the signs demonstrate an explicit sensitivity to the target viewers and an indication of the demographic for whom dual translation would be required [18]. The signs demonstrate how the discourses about the Arab community in downtown Brooklyn are shaped and suggest that Brooklyn doubles as a place for recent immigrants based on the offer of translation services. The inference is that strong linkages exist with Yemen and or other Arabic communities, hence the need to communicate between and among both demographics using bilingual text or perhaps audio in the minority language. This perspective also supports the dissolution of borders or barriers. For example, Zahra et al., (2021) [35] interview with coffee shop owners in Medan revealed that refreshment also served in assimilation. Moreover, owners' naming of their shops was synonymous with cultural integration.

Figure 5. Yemen Cafe and Restaurant in downtown Brooklyn (Source: Author).

Figure 5 also contained other mini-signs, which were analysed in greater detail later on in the report. The current discussion surrounds the predominant fixture, which is the large-scale blue background sign with the shop name Yemen Cafe written in white (see Figure 6 for spatial location on map). Figure 5 is categorised as the follwoing signs (see Figures 7–9).

Figure 6. Three shops locations: 1—Oriental pastry & Grocery 2—Yemen Café 3 (Figure 5)—Alnoor Boutique in Brooklyn, NYC, USA (Source: Google Earth).

Figure 7. Yemen Cafe and Restaurant sign (Source: Author).

Figure 8. Welcome sign (Source: Author).

Figure 9. Entrance sign (Source: Author).

In Figure 7, the Arabic language is not fully translated into English. Reh (2004) [32] proposed four types of relationships between message content and the language used in multilingual signage. Those models are as follows:

- Duplicating multilingual writing, which presents the same information in each language;
- Fragmentary multilingualism in which 'the full information is given in only one language, but in which selected parts have been translated into an additional language' (p. 10);
- Overlapping multilingual writing, which describes a unit of signage 'if only part of its information is reported in at least one more language, while other parts of the text are in one language only' [32]; and
- Complementary multilingual writing 'in which different parts of the overall information are each rendered in a different language' [32].

In Figure 7, the complementary multilingual model is represented [32]. The Arabic language on the sign is interpreted as 'Happy Yemen Restaurant'. However, the English translation which is included reads as 'Yemen Cafe' and 'Middle Eastern Cuisine'. The words 'Happy Yemen' (the red arrow points to the phrase in Figure 7) originate from the Yemen culture, albeit familiarity with the language is necessary for understanding [18]. The appearance of Arabic supports the interaction premise of signs targeting a specific demographic and also the dominant placement of the preferred language [28]. Of note is the appearance of additional LL characteristics, such as the text size, typeface and language order [35].

The third and fourth signs consist of gateway signs. The 'Welcome' sign is located at eye length to the left of the building, while the 'Entrance' sign is mounted above the doorway of the establishment. See Figures 8 and 9.

These two signs (Figures 8 and 9) show parallel translations in which they have identical content in Arabic translated into English. Reh (2004) [32] defined such signs as 'duplicating multilingual writing' since it 'presents the same information in each language' (p. 10). They are also of equivalent weight, size and colour. Of interest is the inference from the Welcome sign being placed on the exterior of the building. Some authors suggest this is a way of expressing tolerance, inclusivity or indicating to potential visitors a sense of caring [35].

The fifth sign is the Yemeni 'Restaurant Invitation' sign, which encourages potential patrons to try the restaurant's Yemeni foods and dishes (see Figure 10).

Figure 10. Invitation to try Yemeni food (Source: Author).

This sign displays the following text:

- In Arabic (top): 'Taste the authentic Arabic and Yemeni dishes'.
- In English (bottom): 'Come try our original Yemenite dishes'.

This sign demonstrates the fragmentary multilingualism model as identified by Reh (2004) [32]. This provides some intimation about the store owner who places the dominant or preferred language at the top. It also gives a perspective about the sign producer or translator who provides only enough information in the secondary language (English)

based on who they perceive their audience to be, namely, a visitor 'Arabic and Yemenite' is synonymous, so there is no need to distinguish between the two in the English translation [8]. Zahra et al. (2021) [35] also suggest such signs could indicate pride in cuisine and artisan relationship with the food hence the annexation to sociolinguistics.

The sixth sign is for a travel agency that offers services for religious travellers from Omrah to Makkah or those on a pilgrimage (Hajj); tours to these countries are also offered (see Figure 11). In this instance, the English translation is on a larger scale and occupies a dominant space at the top of this red background sign. Here, we can assume the targeted demographic is not mainly Arabs but potential visitors for whom English is their lingua franca.

Figure 11. Religious and tourist services sign (Source: Author).

The sign in Figure 11 fits the complementary multilingual writing model. The key information is given in the main language of the neighbourhood (Arab community), and only part of the information is in the second language (English). In the English section, we only see 'travel information', namely, that the office offers travel services. Conversely, in the Arabic section, the sign says that in addition to 'travel services', Hajj and Omrah are offered for religious journeys for the spiritual fulfilment of Muslims. If the reader of the sign does not know Arabic, they will be oblivious to this service, which suggests this aspect of the service is only targeted toward Arabic speakers [18]. Note also that the writing is repeated at the sides of the overhang to also cater to readers walking along the pavement. This supports [36] claim about the pragmatic nature of signs and their social deontic modality. In this instance, the 'authority' figure and legitimacy are inferred by the type of service given the power of religion as a marker in the lives of Muslims, and that is represented here in the Arabic language only. The Arabic language is the language of the Quran, which is the Muslims' Holy book [37]. Therefore, it is unlikely that a non-Arabic speaker would visit a conventional travel agency for this service, as it is written only in Arabic. While the top language on the sign (English here) is used for assimilation but rather to present as signs of modernity, prestige and success [18].

The seventh sign is an Islamic clothing shop for women (see Figure 12). This sign also fits the complementary multilingual writing model. The name on the sign is 'Alnoor Boutique' in English, and an identical translation is provided in Arabic. Zahra et al. (2021) [35] note that the use of family names conveys ownership. However, the sign shows additional information about the conservative type of clothes sold at the establishment, which are typically worn by Islamic women. More than likely, these garments would have long sleeves and are loose and long-fitting, called Jilbab (Arabian women's dresses). While

this sign advertises to Arab and non-Arab women in general, the additional information in Arabic suggests a specific focus on Muslim Arabic-speaking women [18]. The display in the shop's windows suggests that it also sells children's clothes. In this instance, the sign's originators depend on visual symbolism instead of text. Several reasons could account for this, e.g., boutiques do not normally stock children's clothes but cater to an adult population. However, in this instance, the LL signals it is a family-oriented type of establishment that serves married women who would be responsible for daily child care. Therefore, the addition of children's clothing makes commercial sense as the boutique functions as a one-stop shop and saves time rather than visiting two different establishments. Moreover, these special clothing are unlikely to be available in conventional stores in malls in the USA. Rather, they are more likely to be found in certain community shops, for example, in the Arab community of Brooklyn.

Figure 12. Clothes shop sign (Source: Author).

The eighth sign is the 'Oriental Pastry & Grocery' shop sign (see Figure 13).

Figure 13. Pastry & Grocery shop sign (Source: Author).

This storefront featured two signs. The predominant sign has a black background with the words 'Oriental Pastry & Grocery' written in green/off-white, but it does not have an Arabic translation. Its only allusion to the Eastern heritage is the pseudoscript or typographic mimicry of the word 'Oriental', where the typeface is singled out and made to resemble Arabic [38].The less prominent signs are positioned below and have a red background with white writing; both have an equal amount of English and Arabic text; however, on one side, the Arabic text is predominant, and on the other, the English writing is predominant. This sign fits the complementary multilingual writing model because we see some information in Arabic with the main words in English. The red sign includes the following text (Arabic and English are on the same line facing each other):

- In Arabic: 'Oriental company for candies and grocery'.
- In English:
  - Oriental pastry & Grocery' (the same as the sign above with a black background).
  - Specializing in Middle Eastern Food' (not translated into Arabic).
  - Finest pastries and catering' (not translated into Arabic).

Regarding English-only word models, Zhara et al., (2021) [35] findings showed that bilingual sign owners were more interested in advertising. The mono-language also suggests that the sweets and candies sold are not Eastern but more familiar to the English population. This deliberate border breach demonstrates how signs serve to create affiliations among the community and result in 'establishing a relation of cooperativeness' [36].

The ninth sign refers to the business services offered by Gamal. This sign fits the fragmentary multilingualism model. See Figures 14 and 15.

Figure 14. Gamal Business Services Inc. shop sign (Source: Author).

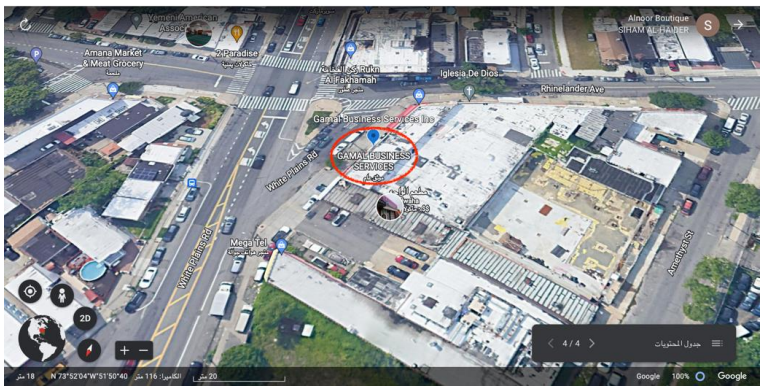

Figure 15. Gamal business services shop location in Brooklyn, NYC, USA (source: Google Earth).

The sign states the following:

- In Arabic (top): 'Gamal for general services'.
- In English (bottom): 'Gamal Business Services Inc.'.

In addition, we can see other mini-signs in the corner of the shop's windows, some of which are written only in Arabic. Therefore, the customers for this shop will mostly be Arab Americans interested in its various business services. The choice of text here is quite interesting since both have slightly different connotations for English speakers. The word 'business' is a more definitive term than 'general services'.

The tenth sign concerns the 'Hadramout Restaurant'. Figure 16 fits the complementary multilingual writing model. Some information is provided in English, such as the restaurant name, which is prominently located at the top of the establishment. However, there is very little information about whether the menu is only in Arabic. The Arabic sign below the restaurant's name is written on the glass and does not stand out. The text translates as 'Mandi house' (literal Arabic translation into English). Mandi is a popular Arabic traditional dish made of either chicken or meat cooked in a tightly covered pot placed in an underground pit with firewood for two hours and served with rice. The poor condition of the signage suggests this may be an established and well-known diner, so there is little need to expend effort or money on improving the exterior to attract new customers. This is evidence that English use serves more as a sign of prestige and success and not to solicit business from English-speaking customers [18].

Figure 16. Hadramout Restaurant sign (Source: Author).

4.2. Visual Semiotics

Visual semiotics builds on the work of Goffman and Kress and van Leeuwen. A broad definition is provided by Scollon and Scollon (2003) [8] as 'all how meaning is structured within our visual fields' (p. 11). Visual semiotics analyses the way visual images communicate a message and seek to interpret the messages based on the signs and patterns. A review of the Yemen restaurant sign shows the translocation of the image of the Yemen Gate and Yemeni writing to the Yemen Cafe sign (see Figures 17 and 18). This symbolism has several interpretations; for example, it highlights the transmittal of symbols from Yemen as a mnemonic aid and teaching of heritage culture to the next generation. The signage provides clues about the owner of the sign or the sign maker as either recent migrants or heritage keepers. In these instances, the meaning of these semiotic signs extends beyond their inherent meaning [18].

Figure 17. 'Bab Al Yemen' or the Yemen Gate (Source: Author).

Figure 18. Yemen Restaurant and Cafe sign (Source: Author). Note: Red Arrows are showing the resemblance between the gate and the aesthetic part in the writing script on the sign.

The visual symbol is in the restaurant logo (see Figure 19) and the traditional Yemeni dagger (see Figures 20 and 21). The logo is a geometrical shape that curves like a dagger and means 'Happy Yemen restaurant' because using the phrase 'Happy Yemen' in Arabic gives authenticity to the restaurant. An English speaker might assume that a restaurant with a sign reading 'Happy Yemen' serves good food or that it is simply a funny name for a restaurant. However, unless they are familiar with Yemeni culture, they might not make the connection with the authenticity of the restaurant. Most Arabic speakers would understand this to be more than just a label and appreciate its importance as a historical phenomenon.

Figure 19. Yemeni Restaurant logo.

Figure 20. Yemeni dagger [39].

Figure 21. Yemeni dagger [40].

Overall, the writing system of the logos artistically demonstrates unique Arabic calligraphy [38]. This artistic writing takes the shape of a Yemeni dagger.

4.3. Place Semiotics

Place semiotics include a typology of spaces and are linked to their usage [8]. All the signs featured in the study were specifically intended to advertise commercial services to a predominantly Arabic-speaking community. The signs also outlined the spatial characteristics of the community in which they were targeted. Of interest was the location of the signs, their scale and the predominance of either the English or Arabic language in the signage. During a tour of the neighbourhood, most people whom I observed had Arab features. Therefore, signs in English were also included in catering to the Arab American generations for whom Arabic was a distinct second language or to satisfy legal requirements that signs have an English translation. Figure 22 is a social sign and was included to provide evidence of a typical neighbourhood exterior. The area appears orderly compared to other parts of downtown Brooklyn.

Figure 22. Exterior of the Yemen Cafe and Restaurant.

Additionally, the woman featured in Figure 22, sitting on the stoop and clad from head to toe in a traditional abaya, is atypical of someone from a non-Arab community. Other forms of appearances reflect the contexts of these communities and their natures. Black coverings for women are only popular in Arabic countries and specifically in the Arab Gulf regions.

In Figure 23, the restaurant logo inside the shop indicates that the restaurant was established in 1986. Lou (2017) [41] assigned research significance to perceived spaces

of consumption and a sense of place inside a shop. The insertion of the geometrical shape of the logo within the traditional Yemeni dagger reinforces the authenticity of the restaurant. Likewise, the small sign hanging inside the restaurant with the name 'Muhammad' has religious connotations and shows the link to Islam. According to Islamic doctrine, Muhammad ('Peace be upon him') was a prophet and the last messenger from Allah of the last religion revealed on Earth. This suggests to both Muslim visitors and customers of the restaurant that it offers halal food. In all likelihood, the restaurant owners are also Muslims, which supports the cultural importance of signage [35]. Several conclusions can be drawn from the placement of this sign within this restaurant [36]. For instance, visitors would have to understand the significance of the dagger and anticipate the type of food served here, and not expect servings of pork or pork products [36]. The inclusion of indoor signage expands the LL research [42].

Figure 23. Interior context of the Yemen Café and Restaurant.

5. Discussion

The research sought to understand the LL among the Yemeni population in downtown Brooklyn by examining the creators of these signs, their target audience and their semiotics. The presence of commercial signs is an important element of the NYC cityscape. They represent the multilingualism of the city, and their categorisation as 'bottom-up' signage suggests that their owners 'enjoy the autonomy of action within legal limits' [16]. Nevertheless, they are left to the creativity of the owners and are representative of their collective identity, although their existence is undoubtedly dependent on official good graces. We saw this demonstrated with the inclusion of Arabic text in the signage of global chains such as CVS (see Figure 3). Signage in the Arabic community in downtown Brooklyn also demonstrates the bilingualism of the public space, even if the immanent population are monolingual Arabic speakers [18]. However, Kroon (2019) [5] argues that public space is never neutral. Instead, it is always 'somebody's historical space, and therefore full of codes, expectations, norms and traditions, a space of power controlled by, as well as controlling people' (p. 296)

In addition, the inclusion of garnitures (see Figures 19 and 23) representative of Yemen shows the impact of globalisation and the borderless flow of cultural products. To this end, the study of signs considers not only the language of these signs but also other semiotic structures, such as a dress or cuisine [26,35] and the authority of their actors.

Overall, the analysis supports the premise that the target population of this specific location in downtown Brooklyn was Arabs and non-Arab Muslims. The bilingual signs appeared to favour the use of Arabic over English and support, in part, the presence of

diglossia through high and low forms of Arabic. The complementary and fragmentary format, as described by Reh (2004) [32], is evident in these commercial and social signs. The frequent positioning of the Arabic language over the English text, the disparity of the scale and the appearance of the text support the geosemiotics interaction order [8,30,35].

The analysis also shows that LL is associated with the strength of the community members, which is evident through covert rules, norms and conventions [5,36] in the Arab community. The signage in Figure 11 (travel agency) conveys the intrinsic use of authority and power due perhaps to religious or authentic Yemeni knowledge. Holes (2004) [37] describes standard Arabic as a 'language of power and control' (p. 9). Therefore, it would have been interesting to understand the public's reaction to these signs and whether they acted as inclusive or exclusive LL in the community [36]. This is particularly in cases where LL suggests an integrative or assimilative agenda with community members of their host country through inclusive signs (see, e.g., Figures 11 and 13).

The visual symbols integrated into the LL highlighted similarities with the Yemen landscape and culture and suggested the dismantling of the divisive border through these linkages with the home territory. The appearance of signs demonstrating services such as translation (see Figure 5) and the interaction order also reinforces the ideology of LL's contribution to a borderless space redefined, re-circulated and reengineered by these owners and creators. [7] positioning of the border theory can be used here symbolically. The concept of migrants reconstructing their own 'public space' by establishing borders through LL was highlighted here but is worthy of further exploration. While researchers like Newman (2006) [24] suggest the disruption to borders made seamless by cross-disciplinary works but re-instated through events such as 9/11, Shohamy and Waksman (2008) [43] tackle the issue by examining how mean-making devices re-establish an ecological arena, similar to this research. The analysis highlights ways LL supports affiliation, such as English text directed mainly to the New World community (see Figure 13). This supports Zhara et al., (2021) [35] premise of social, cultural and promotional orientation. While this research supports Reh's (2004) [32] four models of relationships between message content and language, it differs slightly as it premises a transnational approach ably assisted by the increased immanence of technology in the 21st century. Technology is foreseen as important to further enable socially constituted borders comprised of memories, communications and transmission of cultural artefacts that function as mnemonic devices in the LL. Accordingly, this manifestation is proposed to be a novel approach to Yemen migrants' Arabic-dominant LL in downtown Brooklyn.

6. Conclusions

The study of public signs infers a geospatial understanding of a neighbourhood. In this research, the LL of an Arab American community in downtown Brooklyn was examined to acquire an understanding of the demographic through diverse static commercial, service and gateway signs. This research focused on determining the notation of each sign, its audience and the author of the signs. The study used the principles of border theory and geosemiotics to frame an understanding of the neighbourhood. This combination of perspectives has not been addressed in research on LL with this community, to the best of my knowledge, so this research contributes to the literature by exploring this dimension. There were some limitations, such as the lack of inclusion of government signs that would have shown a better representation of the neighbourhood. Interviews with store owners would have provided a deeper understanding of their reasoning behind the design of their signs and confirmed or disconfirmed inferences drawn from the data on this under-researched population in downtown Brooklyn.

While the findings cannot be generalised to similar communities in other parts of the US, such as Detroit, which has a comparable population of Arab Americans, the study does challenge the assumption of authors who argue that borders do not represent social divisions. Further studies should examine this important community and the contributions made by this population through LL.

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