

PATTERNS OF SPACE, TIME, AND THEME INSCRIBED IN  
TEXAS OFFICIAL HISTORICAL MARKERS

by

Yusik Choi, M.A., B.A.

A dissertation submitted to the Graduate Council of  
Texas State University in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
with a Major in Geography  
May 2023

Committee Members:

Alberto Giordano, Chair

Ronald Hagelman III

Edwin T. Chow

Ken Foote

**COPYRIGHT**

by

Yusik Choi

2023

## **FAIR USE AND AUTHOR'S PERMISSION STATEMENT**

### **Fair Use**

This work is protected by the Copyright Laws of the United States (Public Law 94-553, section 107). Consistent with fair use as defined in the Copyright Laws, brief quotations from this material are allowed with proper acknowledgement. Use of this material for financial gain without the author's express written permission is not allowed.

### **Duplication Permission**

As the copyright holder of this work I, Yusik Choi, authorize duplication of this work, in whole or in part, for educational or scholarly purposes only.

## **DEDICATION**

To my dear family members in South Korea and all the people who left their traces in the Texas Official Historical Markers.

## ACKNOWLEDGEMENTS

My first appreciation must go to Dr. Alberto Giordano for the heartwarming welcome on my first days of studying abroad and professional advice on my academic activities. Words cannot describe how generously he guided me through this dissertation and how sincerely he cheered me up every time I was in self-doubt. My dissertation committee members have also given me invaluable support and guidance throughout my research and life in the Lone Star State. Dr. Ronald Hagelman III recommended an excellent reading list on Texas and kept me focused on historical geography during his Spring 2021 course “Historical Geography of the American Environment,” and afterwards. Dr. Edwin T. Chow was the first faculty member I worked with as a research assistant (Fall 2019 to Spring 2020). He offered me the opportunity to co-author one journal article and provided me with excellent advice regarding quantitative methods as I attended his graduate-level GIS course. Dr. Ken Foote is the major contributor to the philosophical depth of this study. I was already indebted to his works when I earned my master’s degree in South Korea (June 2017) and wrote my first paper regarding commemoration. The conversations with him via online meetings and emails opened my eyes to the dark side of American memories as well as the positive ones. Without their guidance and patience, this study would not have been completed.

## TABLE OF CONTENTS

	<b>Page</b>
ACKNOWLEDGEMENTS.....	v
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
LIST OF ABBREVIATIONS.....	x
ABSTRACT.....	xi
CHAPTER	
I. INTRODUCTION.....	1
II. THE TEXAS HISTORICAL MARKERS PROGRAM: SPATIAL, TEMPORAL, AND THEMATIC PATTERNS OF DISTRIBUTION.....	16
Introduction.....	16
Data and methods.....	21
Results.....	25
Spatiotemporal patterns of commemoration.....	25
Thematic patterns of commemoration.....	32
Discussion.....	45
Conclusions.....	52
III. RACIAL AND ETHNIC NARRATIVES IN THE TEXAS HISTORICAL MARKERS PROGRAM.....	54
Introduction.....	54
Data and methods.....	61
Results.....	66
Textual analysis: quantitative summaries.....	66
Discourse analysis: qualitative semantics.....	80
Discussion.....	92

IV. A COMPARATIVE ANALYSIS OF HISTORICAL MARKER PROGRAMS: TEXAS, GERMANY, AND SEOUL .....	99
Introduction.....	99
Texas historical markers: materiality as location.....	107
Texas historical markers: materiality as text .....	112
The Stolpersteine program.....	120
The Seoul historical marker program .....	125
Conclusions.....	131
V. CONCLUSIONS.....	135
REFERENCES .....	140

## LIST OF TABLES

<b>Table</b>	<b>Page</b>
1. Semantic frequency list of all tags.....	35
2. Semantic frequency list of tag S .....	37
3. Semantic frequency list of top ten tag-S words per decade.....	40
4. Global Moran's <i>I</i> statistics .....	41
5. Word and POS frequency lists.....	69
6. Word frequency list by decade .....	71
7. Space-time clusters ( $p\text{-value} \leq 0.001$ ) .....	78
8. Word collocate list .....	83
9. Semantic collocate list .....	87
10. Semantic collocate list by decade .....	90

## LIST OF FIGURES

<b>Figure</b>	<b>Page</b>
1. Preprocessing stage.....	6
2. Relocation of the “Dimmit County” marker.....	9
3. Number of markers containing three data components (June 1, 2022).....	14
4. Markers erected by year.....	26
5. Dot distribution of historical markers.....	28
6. Kernel Density of historical markers.....	29
7. Kernel Density of historical markers per decade.....	31
8. Local Moran’s <i>I</i> statistics of Tag S and of all tags.....	44
9. Word frequency by decade.....	73
10. Space-time clusters (p-value $\leq 0.001$ ).....	77
11. Normalized population by county.....	80
12. Texas Official Historical Markers.....	107
13. Three types of text editing.....	114
14. Seoul Historical-Cultural Markers.....	127
15. Sanctifying a place by symbolic accretion.....	127
16. Seoul marker relocated after road construction.....	130

## LIST OF ABBREVIATIONS

<b>Abbreviation</b>	<b>Description</b>
CLAWS	Constituent Likelihood Automatic Word-tagging System
GIS	Geographic Information Systems
GIScience	Geographic Information Science
LISA	Local Indicators of Spatial Association
LLR	Log-likelihood ratio
MAUP	Modifiable areal unit problem
POS	Part of speech
RTHL	Recorded Texas Historical Landmark
THC	Texas Historical Commission
UCREL	University Centre for Computer Corpus Research on Language
USAS	UCREL Semantic Analysis System
UTM	Universal Transverse Mercator

## ABSTRACT

The Texas Official Historical Markers are small, durable monuments inscribed with commemorative texts authorized by the Texas Historical Commission (THC). This study analyzes the spatial, temporal, and thematic patterns of Texas markers to explore their characteristics and significance within the broader framework of commemoration in the United States and commemoration in general. The data used in this study consist of more than sixteen thousand markers and two million words, which I analyzed with an interdisciplinary methodology that combines corpus linguistics, narratology, and Geographic Information Science.

After a long preprocessing stage, which is described in the Introduction, the analysis began with a study of the marker's spatial, temporal, and thematic patterns. These patterns are in significant part determined by the celebration of the anniversaries of the Texas Revolution (1836) and the Civil War (1861–1865). In terms of themes, the most notable change in Texan practices of commemoration is the transition from war to peace, which occurred during the 1960s and 1970s. In terms of location, markers tend to be concentrated in urban areas. The following chapter is dedicated to topics of race and ethnicity. The terms “indian” and “mexican” are particularly loaded with negative connotations, while other groups are generally described in positive or neutral sentiments, or ignored. Finally, I examined the materiality of the Texas markers. Historical markers of the type used in Texas are smaller than most other commemorative facilities (e.g.,

statues and monuments) and are subject to frequent relocations and text edits. A comparison of Texan materiality (state) to Germany (country) and Seoul (city) reveals both similarities and differences between these programs. Overall, results indicate that the uniqueness of Texas stems from the interaction between diverse identity groups in a frontier borderland, while its commemorative patterns fit into a broader national narrative. This study contributes to the geographies of commemoration by demonstrating how to deal with “big data” using an inductive approach.

## I. INTRODUCTION

Commemoration creates distinctive patterns through thematic and temporal selectivity. Direct memories fade after two or three generations, witnesses die, but society counteracts this inevitable fact of life by choosing to commemorate certain people, events, and places, while forgetting others. Commemorative agents—individuals, families, grassroots activists, policymakers, and international organizations (e.g., UNESCO: United Nations Educational, Scientific, and Cultural Organization)—determine what is worth remembering and what should instead to be forgotten (Lowenthal 1975; Foote 1990). This may change in space, with time and by theme because the memorialization process involves a set of complex questions regarding the placement of monuments, zeitgeist (the spirit that defines or represents a period), conflicts of interest, and also the financing of commemoration. When studied individually, material acts of commemoration seldom reveal their reasons to exist and their overall narrative, so researchers are eager to find patterns that connect individual observations and allow the study of the logic behind commemoration (Bodenhamer 2010; Foote and Azaryahu 2007).

This study analyzes the spatial, temporal, and thematic patterns of historical markers, a type of commemorative facility only infrequently studied by academics. Historical markers are small metal plates or other durable materials inscribed with texts commemorating historical sites, individuals, societies, events, architecture, and other topics considered important by their administrators. Marker programs sanctioned by civic

authorities of some kind are common commemorative practices in the United States, but examples are found elsewhere around the world, including the United Kingdom, the Philippines, South Korea (Choi 2018; Otterstrom and Davis 2020; English Heritage 2023; National Historical Commission of the Philippines 2023), and other countries. In the United States, geographers have explored patterns of commemoration in Tennessee, North Carolina, Virginia, and California (Jones 1988; Alderman 2012; Hanna and Hodder 2015; Otterstrom and Davis 2016; Bright et al. 2021). While large commemoration programs are the enterprise of the state, a rare example of large (90,000+ markers) and not state-sanctioned program of memorialization is the Stolperstein project, which originated in Germany and has now extended to the rest of Europe and remembers the victims of the Holocaust (Gould and Silverman 2003; Harjes 2005; Blatt 2012; Apel 2014; Cook and van Riemsdijk 2014).

In the introduction to Chapter 21 (History Programs), Title 13 (Cultural Resources), the *Texas Administrative Code* defines Texas Official Historical Markers as “those markers, medallions, monuments, and plaques the Texas Historical Commission awards, approves, or administers” (Texas Secretary of State 2022). Note that the broad category of Texas Official Historical Markers involves a variety of artifacts—not only the “markers” but also “medallions, monuments, and plaques.” Indeed, the *Texas Administrative Code* defines each subcategory of Texas Official Historical Markers as follows:

- Markers: informational aluminum signs erected by or with the permission of the Texas Historical Commission;

- Medallions: markers displaying a symbol or statement used to identify a property designated by the Texas Historical Commission as a Recorded Texas Historic Landmark, as a State Antiquities Landmark or as a Historic Texas Cemetery, without additional text;
- Monuments: objects or structures installed to commemorate or designate the importance of an event, person, or place, which may or may not be located at the sites they commemorate. Aluminum markers erected by the Texas Historical Commission are not included in this definition;
- Plaques: markers displaying only the name of a cemetery designated as a Historic Texas Cemetery and the date of its establishment.

Many markers were erected before the Texas Historical Commission (hereafter THC) launched the current program in 1962. From its inception, the THC has used different marker designs, which the *Texas Administrative Code* illustrates as such:

... They include centennial monuments the State of Texas awarded in the 1930s; Civil War Centennial monuments from the 1960s; medallions, plaques and markers the commission's predecessor, the Texas State Historical Survey Committee, awarded beginning in 1953; and any markers, medallions, monuments and plaques installed by the Texas Historical Commission beginning in 1973.

Materiality is the overarching factor that defines the uniqueness of the Texas Official Historical Marker and reveals its spatial, thematic, and temporal patterns. As concerns space, when compared with larger commemorative facilities—statues, streets, highways, museums, parks, cemeteries, etc.—markers can be easily placed on a sidewalk,

on the ground, or on a wall (Foote 2003; Azaryahu and Foote 2008; Loewen 2019). Because they are easy to build and put in place, and are also relatively inexpensive, hundreds to thousands of markers are found in many U.S. states. In Texas alone, there are over sixteen thousand markers as of June 2022. This number dwarfs other programs: at the time of this writing (March 2023), California has slightly over than 1,000 markers, and North Carolina, the second largest program, only a little over 1,600. As concerns temporal patterns, the Texas program is especially active—perhaps unsurprisingly—during historical anniversaries (Schoen 1938; Beeman and Utley 2008; Brinkman 2010). For instance, the centennial anniversaries of the Texas Revolution (1836), which resulted in the Texan independence from Mexico, and of the Civil War (1861–1865) constitute peaks of activity (in 1936 and 1965). Change in the materiality of the markers attests to technological developments from the twentieth to the twenty-first century. New techniques of text carving, surface polishing, and stainless steel materials have made it possible to create longer texts on cleaner surfaces of enhanced legibility. Finally, thematic variations in markers’ topics allows the exploration of changes in narrative commemoration, which are easier to trace in markers than in other examples of memorial artifacts (e.g., statues), because they only require an inscription plaque, a pedestal, and a pole. Historians and geographers often note that the so-called Texan “uniqueness” stems from interactions between diverse cultural groups in a frontier borderland (Meinig 1969; Jordan 1986; Fehrenbach 2000; Webb 2008). If this is the case, then issues of race and ethnicity, and the border, are expected to feature prominently in the Texas marker program, in ways that are both different from the United States in general and also situated in a broader national context.

The Texas Historical Commission (THC) has been administering the current Texas Official Historical Marker program since 1962. The commission updates the marker dataset every first day of the month and allows the download of the latest version of the dataset from its official website, at no cost to the user (<https://atlas.thc.texas.gov/>). The dataset has a table structure in which one row represents one marker and multiple columns store several attributes—identification (ID), title, year of erection, inscription, latitude/longitude, plus others of less relevance to this study. The THC’s interactive map (the Texas Historic Sites Atlas) displays the markers by programs, not only its own, but also sites in the National Register of Historic Places. The commission often awards multiple designations to highly significant sites: for example, “Recorded Texas Historic Landmarks 1964” or “Historic Texas Cemetery—2000.”

In the THC dataset, a unique ten-digit ID is assigned to each marker to avoid confusion. For instance, while most churches in the dataset are named after their denomination and location—“First Presbyterian Church of El Paso,” for example—the dataset still contains twenty-five markers simply called “First Presbyterian Church,” with no location added. The ten-digit ID and the geographical coordinates of the marker allow each marker to be identified without ambiguities. THC’s monthly revisions involve assigning IDs, adding new markers, reporting changes, filling up blank data, correcting mistakes in the dataset, and reorganizing the structure of table. This study is based on the dataset as of June 1, 2022.

As extraordinary a resource as the THC dataset is, it still requires much editing. To start with, when a user opens the raw (i.e., unedited) THC dataset in Microsoft Excel, some computer settings risk display diacritic marks as question marks: for example,

“café” becomes “caf??” and “Señora,” “Se??ora.” This problem is easily overcome by converting the original .txt format to the UTF-8 format.

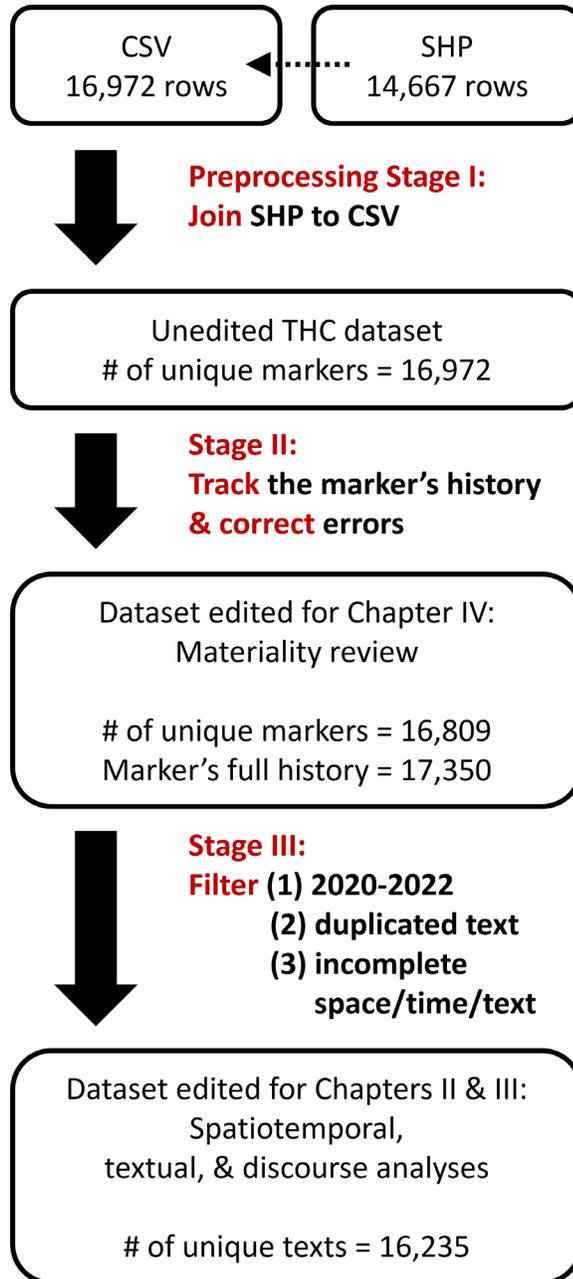


Figure 1. Preprocessing stage.

Some edits require much more work. My processing consisted of three stages: join, correction, and filtering (Figure 1). In Stage I—“Join”—the .csv and .shp files from THC were combined into a single file. The .shp files only include the latitude and longitude of the markers (represented as points), while the .csv contains the attribute data. This join operation was performed using ESRI ArcGIS Pro. 14,561 out of 14,667 .shp records were paired with their .csv attributes; the 106 unpaired records—duplicates of existing markers or coordinates with no attributes—were deleted.

Stage II involved tracking the marker’s life path and correcting errors present in the raw data. As was the case for Vrana (1989), this was the most time-consuming activity. Although THC’s regular updating undoubtedly fix many mistakes, many others remain especially as concerns the attributes of the markers, with some columns containing outdated information. As an example, consider the relocation of the “Dimmit County” marker:

Dimmit County

Created February 1, 1858

Organized November 2, 1880

Named in honor of

Philip Dimmitt,

a pioneer trader and captain

in the Texas Army who

died in 1841

Carrizo Springs, the county seat

Erected by the state of Texas

1936

This was one of the markers built by THC's predecessor—the Commission of Control for Texas Centennial Celebrations, which was set up to honor the centennial anniversary of Texas' independence from Mexico (1836). According to the joined table created in Stage I, the marker was erected in 1936 at 28.52243061° N, 99.86103688° W. These coordinates correspond to downtown Carrizo Springs; however, the centennial commission's official report lists a different location: "3.7 miles north from Carrizo Springs, along U.S. Highway 83" (Schoen 1938, 195). Because this discrepancy is not noted in the THC dataset, users will assume the marker has always been in Carrizo Springs, which is not the case. In fact, visual exploration (Google Street View) confirms that the pink granite block was not there as of September 2013 and only appeared in May 2016 (Figure 2A).

Incorporating the temporal dimension into spatial thinking has been a lingering challenge for GIS practitioners and historians (Langran 1992; Knowles 2002; 2008; Kwan and Ding 2008). In the context of computerized land management, Vrana (1989) distinguishes between three characteristics of spatiotemporal data: date stamping, transaction logs, and updating procedures. Date stamping records date as one attribute—a column in the table—to allow GIS users to select features that satisfy a specific temporal condition (e.g., "Display all markers erected in 1936"). Transaction logs keep track of changes in a record as a time sequence. This is not the same as simply updating a record, for while transaction logs mark the time when a new event occurs (e.g., a marker's erection or disappearance), updates only list when the record was updated (e.g., the dates of first entry or last revision). In other words, the former is driven by the data itself and the latter by its managers. Finding all these three aspects useful, I added new rows and

columns to the original THC dataset to record updates. The table’s new cells are meant to capture every possible change to a marker’s materiality: erection, relocation, text editing, removal by authorities, destruction by vandals or by a natural disaster, missing for unknown reasons, and restoration. Multiple coincident events were combined by semicolons, like “Relocated; Text edited.”

(A)



(B)

Title	Year	Latitude	Longitude					
Dimmit County	1936	28.52243061	-99.86103688					
Title	YrBgn	YrEnd	YrBgn_Desc	YrEnd_Desc	Latitude	Longitude	LocaAccu	
Dimmit County	2016	9999	Relocated	In situ	28.52243061	-99.86103688		5
Dimmit County	1936	2016	Erected	Relocated	28.56992977	-99.8357645		2

Figure 2. Relocation of the “Dimmit County” marker. (A) Google Street View indicates that the granite block marker was relocated to the center of Carrizo Springs between September 2013 and May 2016. (B) New rows and columns to the original dataset to reflect the change in materiality.

Figure 2B shows how I modified THC's original data structure to include both spatial and temporal elements. First, I noted the beginning and end year of the life of a marker to record its duration (columns were named "YrBgn" and "YrEnd"); "YrBgn\_Desc" and "YrEnd\_Desc" record what happened at each timestamp. Each change to a marker created another row with the new beginning and end years so that each row preserves information concerning the monument's materiality status from "YrBgn" to "YrEnd." These new fields allow users to select in ArcGIS Pro markers that satisfy a range of conditions. For example, users can identify all artifacts erected in 1936 as follows:

(YrBgn = 1936) AND (YrBgn\_Desc = 'Erected')

In addition to tracking a marker's life path, I also recorded its positional accuracy, which varies widely in the dataset. To do so, I complemented the THC's .shp file with other sources of information. This work is made more complicated by the fact that locations are recorded differently in different times. Thus, the THC predecessor—the already mentioned Commission of Control for Texas Centennial Celebration—typically designated locations with texts such as the above "3.7 miles north from Carrizo Springs, along U.S. Highway 83" (Schoen 1938, 195). This level of detail was sufficient in the early twentieth century when urban landmarks were sparser than today and people could almost always quickly spot markers in the landscape, but rapid urban development in the subsequent decades has made it much more challenging to find tiny plaques based only on this type of direction. When the current markers program started in 1962, THC began to use more precise street addresses, and while GIS usually have functionalities for

geocoding—the conversion of addresses to XY coordinates—that does not work with the thousands of locations only vaguely described in. Assigning a precise location to these markers was challenging, lengthy, and tedious work. This is because only 14,561 markers were identified by latitude/longitude; the remaining 2,411 markers (14.2%) did not include this information and had to be georeferenced manually. To do so, I used Google Maps. For example, “3.7 miles north from Carrizo Springs, along U.S. Highway 83” corresponds more or less to the point of coordinates 28.57361616° N, 99.90850504° W. The exact location of these 2,411 markers is, of course, approximate; to give an indication of how approximate, I created five positional accuracy categories:

- 5 of 5: The marker was exactly located and confirmed by visual proof (e.g., photographs and Google Street View).
- 4 of 5: Latitude/longitude was provided by the THC or other sources, although the marker’s existence was not confirmed visually (i.e., is not in Google Street View).
- 3 of 5: An exact location is not given but can be estimated by street address, by the name of a building, or another identifiable landmark (e.g., a park, a cemetery, a civic square, etc.).
- 2 of 5: The approximate location was estimated by textual description (i.e., origin, direction, and distance). This is the Carrizo Springs example.
- 1 of 5: Location unavailable due to lack of information.

To minimize the possibility of locational errors, I consulted additional sources, including marker application forms submitted to the THC (accessible online through <https://texashistory.unt.edu/>), local newspapers, historical maps, Google Maps, and user-provided online databases. Although the THC dataset is the official and most important source for this study, local newspapers and historical maps were especially useful in once rural and now urban areas. Where available, Google Maps and Street View provided visual proof that a marker had existed at a certain site on a certain date. User-provided datasets, although unofficial, are useful as they often include brief narratives relative to individual markers written by members of the public—an example of Web 2.0 (Harris 2015). The following five databases were the most frequently used ones in Preprocessing Stage II:

- Hmdb.org (<https://www.hmdb.org/>): Markers' text, erected year, latitude/longitude, and timestamped photographs as uploaded by internet users;
- Waymarking.com (<https://www.waymarking.com/default.aspx>): Markers' text, erected year, latitude/longitude, and timestamped photographs as uploaded by internet users;
- Weebly.com (<https://texashistoricalmarkers.weebly.com/>): Markers' text, erected year, and latitude/longitude. Photographs too, but with no timestamp;
- Wikipedia.org ([https://en.wikipedia.org/wiki/List\\_of\\_Recorded\\_Texas\\_Historic\\_Landmarks\\_\(Anderson-Callahan\)](https://en.wikipedia.org/wiki/List_of_Recorded_Texas_Historic_Landmarks_(Anderson-Callahan))): List of the Registered Texas Historic Landmarks (RTHL), in which the THC markers are erected to proclaim each building's RTHL designation. Latitude and longitude are assigned to nearly all

records, but not all photographs are timestamped;

- Findagrave.com (<https://www.findagrave.com/cemetery>): Cemeteries or gravestones with historical markers. Cemetery's latitude/longitude and timestamped photographs are uploaded by internet users.

The ancillary sources above, as well as Google Maps, played a critical role in fact-checking the THC dataset, which contains several inaccurate entries. For example, the “Texas State Railroad” marker’s location is listed as at 31.80254661° N, 95.19525206° W in the THC dataset, but this puts the marker in a lake according to Google Maps. A more plausible alternative from hmdb.org is 31° 48.044’ N, 95° 11.635’ W—the “Texas State Railroad, Rusk Depot.” In the wake of similar cases, in Stage II I analyzed all 16,972 rows from the Stage I table, looking for inaccuracies in latitude/longitude, year of erection, and inscriptions fields. Overall, in the 16,972 rows, location information was missing from 2,411 markers, temporal information from 273, and inscription information from 1,201 (Figure 3). Prior to this comprehensive and lengthy editing, only 13,842 markers (81.6% of 16,972) included all three pieces of information, with 3,130 records (18.4%) missing one or more (Figure 3). In the end, I was left with 16,566 records with full information (94.5% of 17,530).

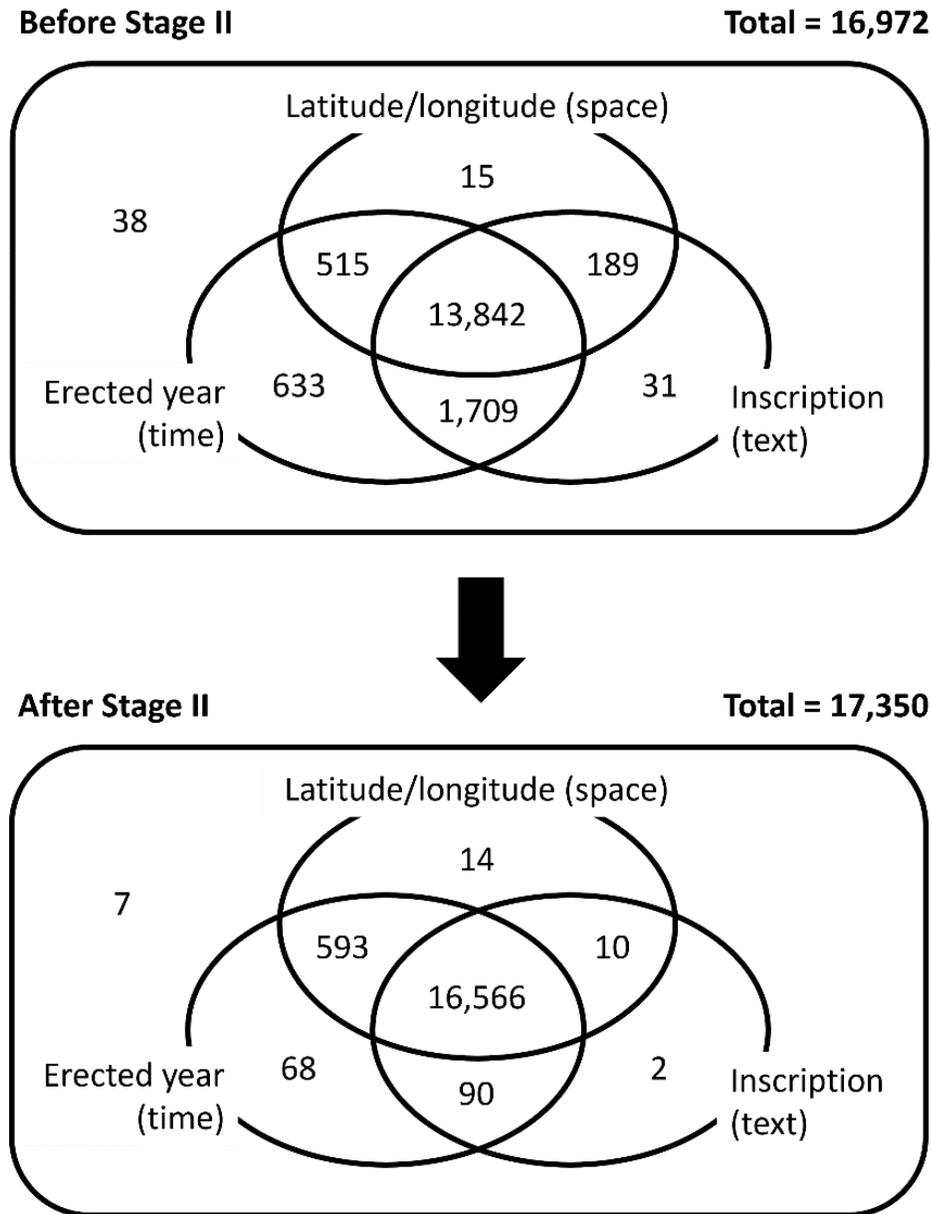


Figure 3. Number of markers containing three data components (June 1, 2022). Preprocessing expanded the intersection of the three circles to minimize data loss.

In Preprocessing Stage III, I filtered the 17,350 records for spatiotemporal, textual, and discourse analysis. First, I removed the markers erected after the year 2019 and divided the corpus into nine decades, from 1930–1939 to 2010–2019, to explore how the narrative and choice of commemorative themes has changed over time. Second, I

removed duplicates caused by changes in the inscription that occurred after initial erection. Whenever this happened, I kept both texts but noted that it was the same marker, which allowed me to determine when the narrative changed and how. However, if the inscription remained the same but the location of the marker changed, I removed the older record to avoid duplications. Finally, I only analyzed markers that had all three types of information, for a final count of 16,235.

This study starts from tackling questions of materiality and then moves on to analysis of geographical, thematic, and temporal patterns of commemoration. The following three chapters are constructed as standalone articles and aim at answering three research questions:

- Chapter II: What are the general geographic, temporal, and thematic characteristics of the Texas markers program? How are those characteristics situated within the contexts of the United States and commemoration practices more in general?
- Chapter III: How do Texas markers tell the stories of their racial and ethnic groups, and particularly in which semantic context (i.e., positive, negative, or neutral)? Why are stories narrated that way and does the narration change over time?
- Chapter IV: What is the unique materiality of the Texas Official Historical Markers and how does it differ from other programs outside of the United States?

## **II. THE TEXAS HISTORICAL MARKERS PROGRAM: SPATIAL, TEMPORAL, AND THEMATIC PATTERNS OF DISTRIBUTION**

### **Introduction**

Spaces and places offer an ideal way, materially and conceptually, of remembering and commemorate history. In the United States, for example, the Arlington National Cemetery is a resting place for active military personnel and veterans; states administer commemorative programs, as do many cities and towns, both material (monuments) and immaterial (civic holidays); at the scale of the building, schools and museums serve as the cradles of vernacular value and identity (Bodnar 1992; Gillis 1994; Foote 2003; Levinson 2018). Commemoration also operates at the scale of the individual, e.g., the celebration of birthdays, wedding anniversaries, and other individual milestones, and the mourning at cemeteries and memorials for loved ones who have passed. With the deluge of commemorative activities and real-time communication through social media, it seems Americans in the twenty-first century are exposed to memorial events everywhere and all the time, and therefore it may feel like memories are reduced to anonymity.

Geographers are interested in studying the where, how, who, and why of commemoration to understand its significance and implications for human beings (Foote and Azaryahu 2007). Geographers' understanding of commemoration stems from the

idea that memorial activities inevitably create a bias (Lowenthal 1975): humans cannot remember everything that has happened in the past, so memorial practices prioritize one period or theme or person over others. When dealing with multiple topics, commemoration artifacts are usually grouped (Dwyer 2004). A historical museum is an example of concentration strategy, in that history is reconstructed around a few dramatic episodes with visitors shepherded into a particular route (Ryan et al. 2016). Statues or engravings also draw attention to a specific time, theme, or person; in doing so they can induce a sense of realism as if visitors are in the presence of glory (Gillis 1994; Loewen 2019). What these cases illustrate is that space is a critical narrative medium through which time and theme express their biased interests (Azaryahu and Foote 2008).

Lowenthal (1975) is considered the first scholar to propose a comprehensive theoretical framework for the geography of commemoration. Lowenthal contends that tangible pasts like relics and souvenirs offer a sense of security and continuity; human beings, from individuals to nations, preserve specific memories to satisfy present needs. This selective nature of commemoration makes the public collectively remember good memories while actively forgetting bad or unpleasant ones. Lowenthal's argument about selective memories led Foote (1990, 2003) to observe that Americans may react to violence and tragedy in four ways: sanctification, designation, rectification, and obliteration. Sanctification is the process by which individuals or communities overcome the loss of life or continuity from the past by making them holy. Designation is a more moderate and calm reaction by which historical subjects are deemed worthy of remembrance. This neutral status often works as a transitional phase toward the other three categories. Rectification exonerates a place, people, or community by exonerating

the descendants from the tragic or violent deeds their ancestors committed. At the opposite extreme of sanctification, obliteration removes every reminiscence of previous tragedies or crimes. Along the continuum from honorable to shameful memories, human beings deliberately select what to commemorate from the past to legitimize new political regimes, indoctrinate the public, or remove the evidence of shameful events. The procedure consequently separates “what happened” (the past) from “what we say about it” (history) (Loewen 2019, 8).

Within Lowenthal’s framework of memorial biases, geographers have paid special attention to the materiality of commemoration. For example, Johnson (1995) explores the significance of statues and monuments that give visible form to nationalistic dreams and repetitively remind the public of official narratives. On this topic, Foote et al. (2000) examine the removal and rearrangement of Hungarian political monuments after the fall of the communist regime in 1989, and Foote (2003) explores a large set of American monuments, cemeteries, markers, and ruins that have survived obliteration. Foote introduces the concept of “symbolic accretion” when discussing the San Jacinto battlefield in Texas, where the state authorities added battleships and memorials to promote Texan valor and American patriotism (2003, 231). Dwyer (2004) borrowed the same concept to explain how monuments’ accretion reinforces a chosen narrative to visitors. In the opposite direction, symbolic accretion can also challenge the mainstream narrative by setting up an antithetical history on the same site. Martin Luther King Street traversing Jeff Davis Avenue in Selma, Alabama, is a fine example (Ibid., 422).

There have been a handful of scholarly works on historical markers—small plates made of metal or other durable materials and inscribed with texts commemorating historical sites, individuals, societies, events, architecture, or other significant topics. Often in these studies, markers are seen as strategic storytellers that favor one-sided narratives to promote what is thought remarkable about a place and often justify dehumanizing practices of the past. For example, Alderman (2012) discusses the “textual politics” found in North Carolina highway markers and observes that while recent markers pay some attention to slavery, other types of racial violence, like lynchings, are only sporadically remembered. In their study of the spatial distribution of sites commemorating slavery and emancipation, Hanna and Hodder (2015) observe that this type of site—for example, Fredericksburg, Virginia—are vastly outnumbered by others that (at least locally) memorialize the Confederacy. In another study, Otterstrom and Davis (2016) examine the uneven distribution, topical change, and location of California markers. Initially, the state’s early emphasis on the Gold Rush led to the erection of monuments in mountain areas despite the area’s sparse population. More recently, commemoration has diversified in terms of topic as well as location, while the continued presence of old markers secure that old memories remain intact. Most recently, Bright et al. (2021) examine Tennessee’s historical roadside markers from the perspective of critical race theory. In comparing marker’s distribution and census demographics, they revisit Jones Jr.’s (1988) early study and found that markers’ regional disparity has lessened since 1988. On the other hand, what is still lacking is the commemoration of groups other than white men, in spite of Jones Jr.’s hope for more diversity.

Few geographical studies examine historical markers programs, and when they do, they are small in size, focused on specific topics only and—aside from Otterstrom and Davis (2016)—employ a deductive approach; this is in contrast with deductive studies, for example Foote’s (2003), in which the author derives four analytical categories only after an extensive survey of commemoration sites and modes around the United States.

To expand on previous studies, some authors have explored the spatiality of commemoration by contextualizing it within a broader framework by examining the interactions between one place and other places (Meinig 1969; Jordan 1986; Schein 1997) or by comparing markers with other types of commemorations (Foote 2003; Azaryahu and Foote 2008). Typically, commemoration sites, such as statues, monuments, and museums, tend to strategically accumulate in populous areas or near other sites of commemoration, in search of attention from the public and for symbolic reinforcement (Arreola 1992; Veselka 2000; Foote 2003; Dwyer 2004; Post 2009). If historical markers were to follow the same patterns, then distinctive spatial patterns will emerge thematically, temporally, and geographically (Azaryahu and Foote 2008).

In spite of its enthusiasm and visibility, as exemplified by the over 16,000 Texas Official Historical Markers erected by the state as of June 2022, no comprehensive study on Texas has been conducted. One obstacle is the sheer number of markers, and in fact, in previous studies the total number of markers did not exceed the two thousands: 1,543 in North Carolina (Alderman 2012), 277 in Fredericksburg, Virginia (Hanna and Hodder 2015), 1,044 in California (Otterstrom and Davis 2016), 1,170 up to 1985 (Jones 1988) with 313 subsequent ones in Tennessee (Bright et al. 2021). Aside from descriptive

essays or oral history interviews (Christian 2005; Beeman and Utley 2008; Brinkman 2010), this study is the first academic research on the historical markers of Texas. Using Lowenthal's geographic framework of selective memories as a starting point, I examine the spatial, temporal and thematic patterns of Texas markers and situate Texas in the broader context of commemoration in the United States as concerns its geography and general commemoration practices.

### **Data and methods**

The Texas Historical Commission (THC), renamed from the Texas State Historical Survey Committee in 1973, is the official administrator of the Texas markers program and its corresponding dataset, which can be freely downloaded (<https://atlas.thc.texas.gov/>). This study used the data as of June 1, 2022. The markers dataset is in .csv and .shp file formats. I combined the two file formats in ArcGIS Pro updating both the .csv (which in some cases did not include the XY coordinates to be mapped) and the .shp files (which contained no temporal and textual information). In August 2022, I supplemented the THC dataset with additional information from the following user-provided online databases:

- Hmdb.org (<https://www.hmdb.org/>): Markers' text, erected year, latitude/longitude, and timestamped photographs as uploaded by internet users;
- Waymarking.com (<https://www.waymarking.com/default.aspx>): Markers' text,

erected year, latitude/longitude, and timestamped photographs as uploaded by internet users;

- Weebly.com (<https://texashistoricalmarkers.weebly.com/>): Markers' text, erected year, and latitude/longitude. Photographs too, but with no timestamp;
- Wikipedia.org ([https://en.wikipedia.org/wiki/List\\_of\\_Recorded\\_Texas\\_Historic\\_Landmarks\\_\(Anderson-Callahan\)](https://en.wikipedia.org/wiki/List_of_Recorded_Texas_Historic_Landmarks_(Anderson-Callahan)))): List of the Registered Texas Historic Landmarks (RTHL), in which the THC markers are erected to proclaim each building's RTHL designation. Latitude and longitude are assigned to nearly all records, but not all photographs are timestamped;
- Findagrave.com (<https://www.findagrave.com/cemetery>): Cemeteries or gravestones with historical markers. Cemetery's latitude/longitude and timestamped photographs are uploaded by internet users.

Temporally, I divided the dataset by decades based on the year the marker was erected, starting in 1930–1939 and ending in 2010–2019. The final result is a dataset of 16,235 markers and 2,141,918 words, which include spatial (location), temporal (year of erection), and textual (inscription) information.

In the first half of the study, I employed Kernel Density to explore the markers' distribution patterns. Unlike discrete point, line, or polygon representations, Kernel Density creates a pixelated surface that highlights regions of high or low density of the variable under study. Here, I used Silverman's (1986) quartic kernel function, which assigns a bell-shaped curve and a circular window to each point feature—a marker, in this case. The curve's apex is at the marker's location and reaches a value of zero at the

window's edge. When all 16,235 surfaces are created, zones of marker concentration are highlighted. ESRI GIS software ArcGIS Pro standardize density values by measuring the number of markers per cells of uniform size across the study area (Texas). The technique assumes that density can be estimated anywhere in the study area, and not only at the exact location of the point feature (O'Sullivan and Unwin 2010, 68). The cell's consistent size mitigates the effects of the Modifiable Areal Unit Problem, in which the size of spatial units may lead to the over- or under-representation of the density surface (Yin 2020). For this study, I made Kernel Density map for the decades 1930–2010 to show the markers' spatial distribution and temporal patterns.

A big data approach is essential to this study, as the markers' text length is over two million words. Corpus linguistics, a field that deals with large bodies of digitized text (corpus), computes and indexes various linguistic components to answer research questions (McEnery and Hardie 2012). Corpus linguistics enables the interpretation of prevalent mood and linguistic trends in a corpus by semantically tagging each word or phrase. For instance, "happy," "joy," and "celebrate" are positive terms, while "sad," "grave," and "shame" are negative. A historical marker that includes positive terms will be assumed to convey positive events and feelings. Corpus techniques have been used to summarize the emphasis of political manifestos, identify economic and social concerns relative to specific place names, compare online user comments on climate change, highlight the themes of World War I poetry, and reveal people's thoughts and emotions at the end of their lives (Rayson 2008; Collins 2015; Poole 2018; Can and Cangır 2022; López-Rodríguez 2022), among others.

Given the impracticability of tagging every possible linguistic component in large corpora, researchers with the University Centre for Computer Corpus Research on Language (UCREL) at the University of Lancaster in the United Kingdom have developed an automatic tagging system called UCREL Semantic Analysis System (USAS). The USAS is based on the *Longman Lexicon of Contemporary English*, which was modified by classifying the broad range of semantics in twenty-one groups identified by a letter; these are further subdivided in 232 subcategories identified by appending numbers and a plus/minus sign to the letter (Rayson 2003). For example, E2+ is a subcategory of E (for “emotion”) for words implying “like” (“loving,” “beloved,” “fondly,” “cherished,” “dear,” etc.), while E2- is used to indicate “dislike” (“resentment,” “hate,” “disgust,” “disapproval,” “unpopular,” etc.). The web-based tool WMatrix, also developed by UCREL, employs the USAS to automatically assign tags and disambiguate a word’s usage by its context (Rayson 2003). WMatrix generates frequency lists of semantic tags and words to help interpret the underlying discourse or sentimental trend of a corpus, which is hardly visible in large word lists and out of context (Rayson 2008; Prentice 2010; Collins 2015).

Lastly, the Moran’s *I* statistics was used to identify the geographic distribution of linguistic patterns. The measure was developed by Moran (1950) to detect spatial associations of similar values by comparing one feature with its surrounding neighbors. In this study, the global statistics of Moran’s *I* returns a single value to indicate if markers are concentrated or dispersed, while its local version (LISA, or Local Indicators of Spatial Association; Anselin 1995) was used to determine the extent of clustering in each county. The two statistics start from a null hypothesis that all semantic tags are randomly

distributed, and therefore no spatial patterns are present, and progresses to determine if spatial patterns exist, what they are, and if they are statistically significant. In plain words, Global and Local Moran's *I* verify whether certain themes, as expressed by the text of the markers, are prevalent in certain regions—in other words, if thematic patterns vary geographically. In this study, markers are aggregated at the county level, for a total of 254 counties. The analysis therefore exposes the characteristics of commemoration narratives more prevalent at this geographical scale.

## **Results**

### **Spatiotemporal patterns of commemoration**

Figure 4 shows the number of markers installed each year. The first marker was installed in 1885, with subsequent peaks in 1936 (1,078 markers), 1986 (531), and 1965 (513). The first and foremost motivation for erecting markers in Texas was to commemorate its independence from Mexico—also known as the Texas Revolution—in 1836. The centennial and sesquicentennial anniversaries of this event thus explain the high number of installations in 1936 and 1986. In 1936, one of the stated objectives of the program was to place “suitable markers, memorials or buildings at places where historical events occurred” (Schoen 1938, 9). This was ostensibly done to help overcome the misery of the Great Depression that swept the state and the country with memories of glorious times (Campbell 2003, 361). A long hiatus followed the centennial, with only forty-eight markers erected between 1936 and 1962, the year the Texas State Historical Survey Committee started the current marker program. The hundredth anniversary of the

Civil War (1861–1865) provided the impetus for the new program, resulting in the addition of hundreds of new markers (Beeman and Utley 2008) in the mid-1960s, a follow up to the erection of Civil War memorials and statues in the late 1890s and the 1910s. These commemorative facilities were meant to reassure society against the upheavals of the time: immigration, urbanization, industrialization, imperialism, lynching, and the Jim Crow laws (McMichael 2009).

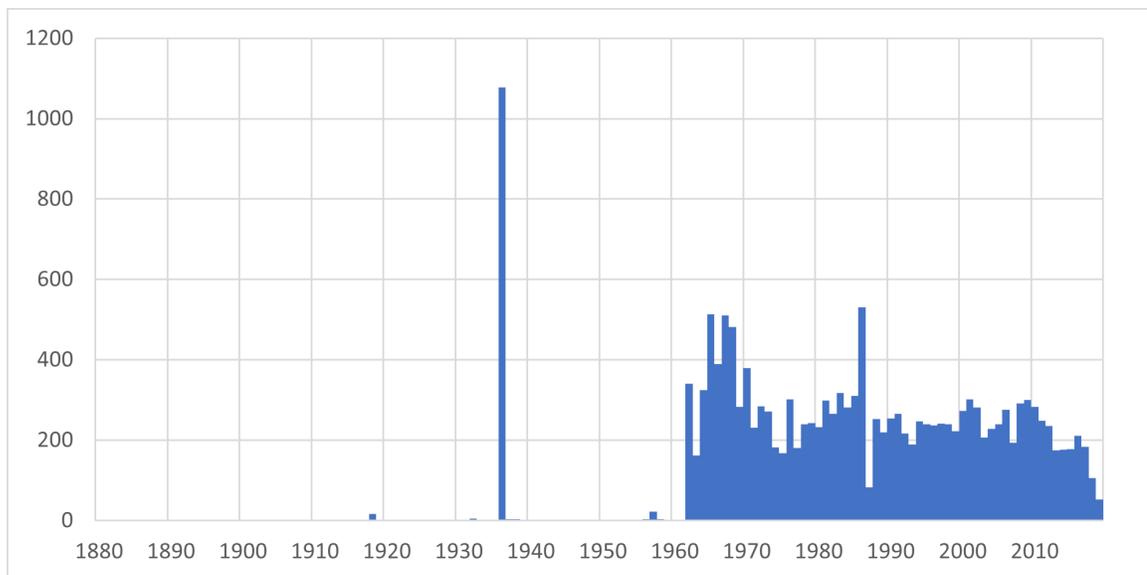


Figure 4. Markers erected by year. Values for 1885, 1894, 1911, 1913–1914, 1917, 1924–1927, 1929, 1931, 1934–1935, 1937–1938, 1940, 1943–1944, 1947, 1949, 1951, 1955–1956, and 1958–1961 (fewer than five new markers per year) are not visible due to the scale of the y-axis.

As they accumulated over time, the Texas markers left patterns in space, and the dot distribution map can visualize them with accuracy. The THC dataset can be mapped in GIS, resulting in a dot distribution map, a type of cartographic representation that has clear advantages over other visualization methods: first, dot maps show spatial distributions in greater detail than a choropleth map, a type of map in which values of the

variable (here, markers) are mapped by areal units (here, counties); second, a representation in which one dot corresponds to one observation, rather than—for example—five or ten or more, is a more accurate representation of spatial patterns (O’Sullivan and Unwin 2010, 67; Otterstrom and Davis 2016, 38).

Figure 5 maps the markers as well as the four most populous urban centers in Texas (Houston, San Antonio, Dallas, and Austin; United States Census Bureau 2022), and the cities located at the intersection of interstate highways (Amarillo, Lubbock, El Paso, Brownsville). Texas’ largest cities are all in the eastern half of the state, as are most of the markers; this is where the first Anglo people settled, to be followed by subsequent immigration waves marking the country’s westward expansion (Meinig 1969, 113–7; Fehrenbach 2000, 467–8). The highway system is deeply intertwined with the markers distribution for two reasons. First, as the often used alternative name “roadside marker” suggests, early markers were typically built along highways, with the suburban landscape of Texas developing in tandem with the spread of the automobile (Schoen 1938; Fehrenbach 2000; Awbery and Awbery 2013; Utley and Beeman 2013; McComb 2015). Second, the location of Texas markers in or around urban areas confirms the rule that markers tend to follow the centrality patterns of other commemorative facilities (Schein 1997; Foote 2003; Dwyer 2004), and the marker’s proximity to major roads confirms the state agency’s intention to attract readers to its markers (Jones 1988; Alderman 2012; Otterstrom and Davis 2016; Bright et al. 2021).

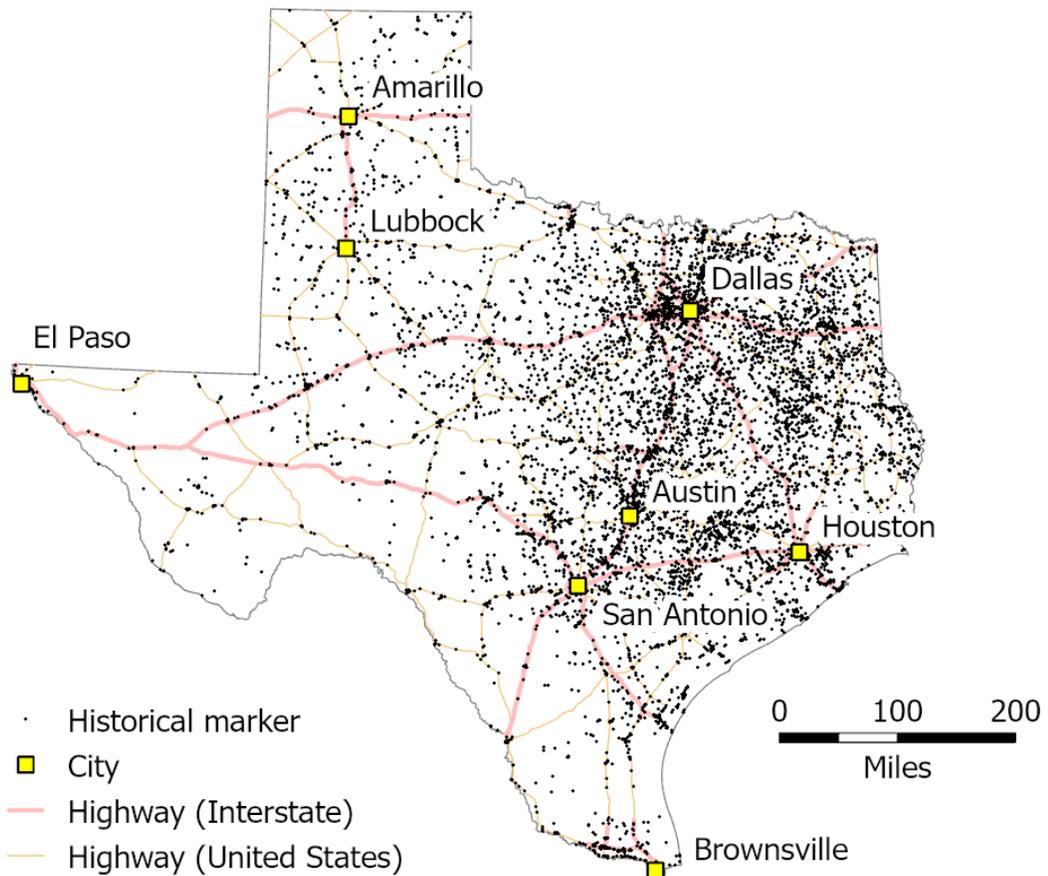


Figure 5. Dot distribution of historical markers.

Figure 6, complements the map in Figure 5. Similarly to Cole and Giordano (2014), I standardized Kernel Density values to a scale of 0 to 100% and then eliminated the lowest values (0–24%) to focus on areas with high densities. The resulting map reveals four core regions with high numbers of markers in and around Dallas, Fort Worth, Austin, San Antonio, and Houston, with scattered areas of high concentration in between. Note that the white areas in the figure indicate a density lower than 25%, and not necessarily the absence of markers.

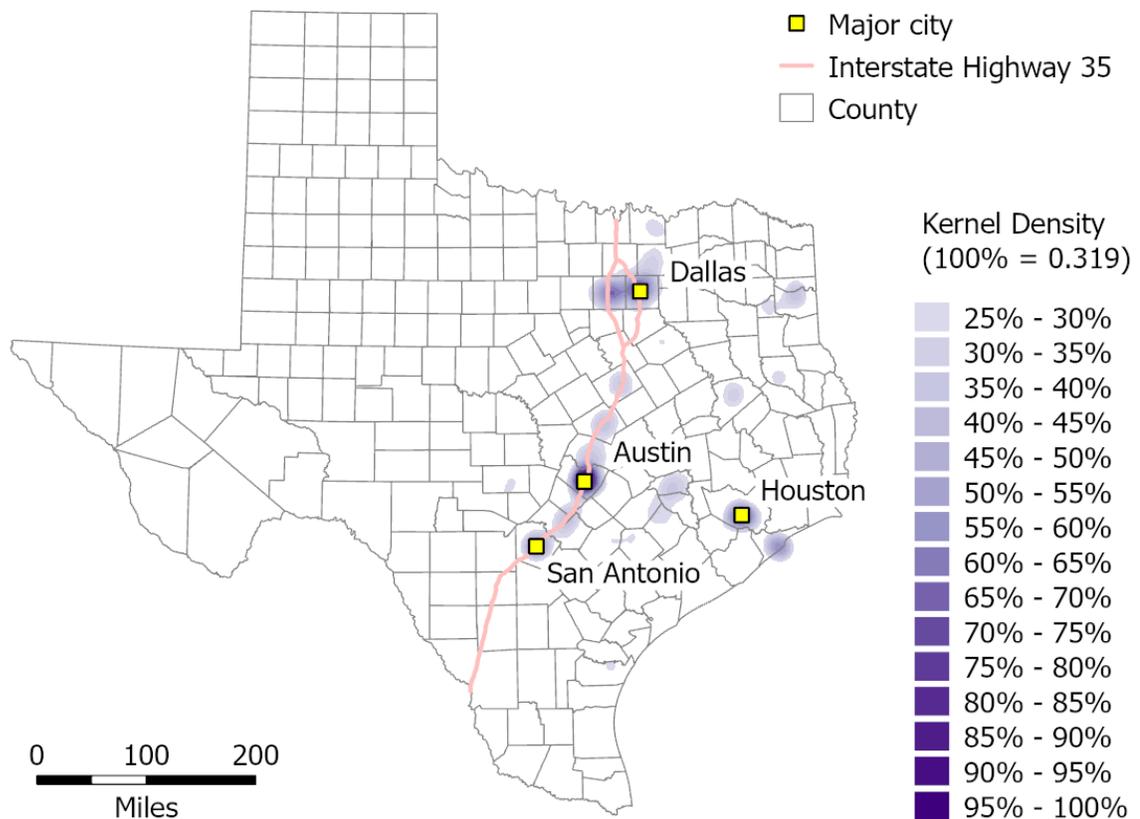


Figure 6. Kernel Density of historical markers.

To explore spatiotemporal patterns, I performed Kernel Density analysis by decade (Figure 7). (Note that the 1940s and 1950s decades are not included, given that between 1940 and 1959, the state of Texas built only twenty markers.) Overall, the maps by decade in Figure 7 show a spatial pattern similar to the overall one, with high concentrations in the east and low in the west, but some differences also emerge.

The density pattern for the 1930s are in effect the patterns for 1936, considering that 98% (1,078 out of 1,095) of this decade's markers were erected in that year. The state's capital, Austin, saw more markers than any other city during this period.

Interestingly, few markers were erected in Dallas, the city that hosted the Centennial

Central Exposition after beating Houston and San Antonio for the honor. The centennial committee's report explained that Dallas had been selected for "the largest financial inducement and support," despite "the least historical background" among the three candidates (Schoen 1938, 12; Texas State Historical Association 2022b). In the 1960s, markers spread to other areas of the state. The western city of Amarillo shows up in the map for the first and only time during this decade, a threshold never reached before or after, in the western part of the state. Another area of high density appears in the northeast corresponding to the two cities of Jefferson and Marshall, where markers frequently mentioned "Confederate," "Confederacy," or "C. S. A.," in reference to the Civil War. Jefferson was the site of the Cotton Bureau Station which supplied cotton and other equipment to the army, while Marshall served as the Confederate capital after the occupation of Missouri. Although the two cities have much smaller populations than Texas's big cities, Kernel Density analysis reveals high densities for this decade due to high spatial concentration in a span of only ten years.

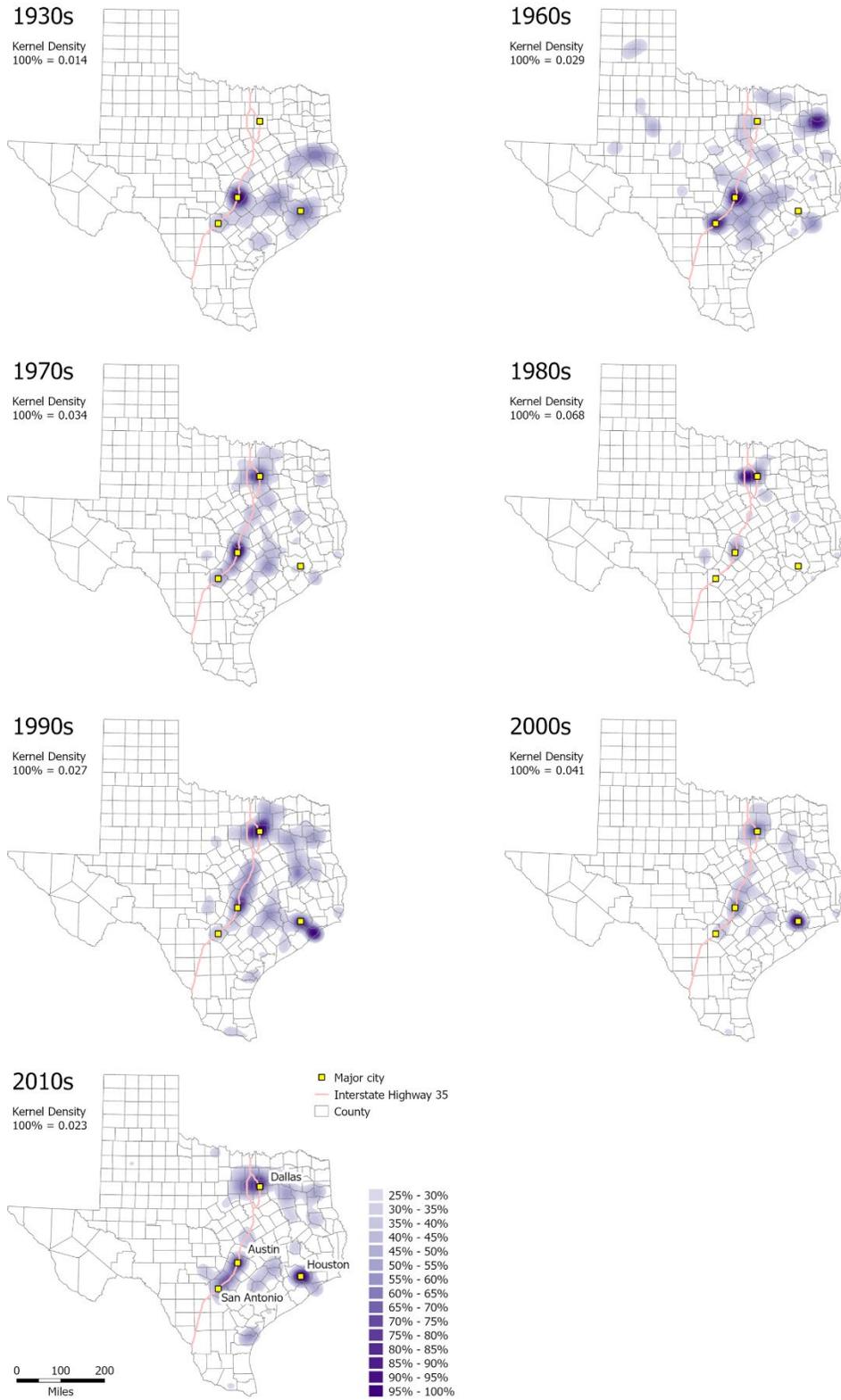


Figure 7. Kernel Density of historical markers per decade.

Dallas emerges as an area of high marker concentration in the 1970s and the 1980s, while Houston does not stand out until the 1990s. Surprisingly, the 1980s saw only few markers erected in and around Austin, despite the state's sesquicentennial in 1986. The fact that few areas of concentration show up in this decade should not be misconstrued as loss of momentum—it did not, as Figure 4 shows; instead, the lack of areas of high concentration indicates that markers were distributed more uniformly in the 1980s than in the other decades, with many markers erected in small towns. In fact, compared to the 1970s, the highest density value (100%) increased in the 1980s from 0.034 to 0.068, with the 25% threshold likewise increasing from 0.009 to 0.017. Houston and the nearby port city Galveston emerge as the program's champions of the 1990s, with markers installed in correspondence to historic buildings and graves in areas once scarcely populated and later incorporated in the city proper—Houston Heights, Courtlandt Place, Hermann Park, and Galveston Old City Cemetery. Houston continued the momentum in the 2000s, mirroring the Dallas patterns of two decades earlier; overall, the vigorous commemoration efforts of this decade are confirmed by an increase in the 100% density value from 0.027 to 0.041. Finally, regional differences petered out in the 2010s despite the concentration in Austin, Dallas, and Houston.

### **Thematic patterns of commemoration**

Commemoration in Texas not only show clear spatial and temporal patterns, but also tend to lean toward specific topics. What these topics are is the subject of this section. A certain word's popularity can be determined by how often it is mentioned in a corpus, and for this reason word frequency lists are common and basic functionalities in

corpus linguistic software (McEnery and Hardie 2012). WMatrix additionally tags words and compiles them into semantic categories. The USAS in WMatrix runs the automatic tagging and the disambiguation process, making it possible to unearth patterns that would otherwise remain hidden in a corpus as large as Texas'. Still, semantic tagging requires considerable editing, as one word can have multiple meanings depending on context. "Spring," for example, can be a noun or verb, and the noun "spring" may indicate a season or a coil (Rayson 2003, 67). WMatrix has the ability to explore the vicinity of each word and assign it a proper tag depending on the word's context, part of speech, frequent usage in the corpus, etc.

Table 1 includes semantic tags by category of meaning and frequency. (Note that the total word count for the corpus is reduced from 2,141,918 to 2,020,833 words because the USAS detected and listed as one word pairs like "civil\_war," "burial\_ground," and "high\_school.") The terms tagged with Z (names and grammar) account for nearly half of the corpus, due to the massive usage of articles and prepositions ("and," "the," etc.) but also because of the word "Texas." Ancillary inscriptions etched in almost every marker also substantially contribute to the repetition of the word Texas—for example, "Erected by state of Texas 1936," "Recorded Texas Historical Landmarks," and "Marker is property of the state of Texas." Note that markers proclaiming state-sanctioned authorship, officiality, and jurisdiction are ubiquitous in the United States (Alderman 2012; Hanna and Hodder 2015; Otterstrom and Davis 2016). The next three rows in the table (tags N, A, M) refer to numbers and abstract terms, as in conventional phrases like "first of a kind," "this is an old site of..." "property of the state," and "landmark of this town," phrased that anchor time in space in order to reinforce a sense of continuity

(Lowenthal 1975; McMichael 2009; Loewen 2019). These types of inscriptions may reveal the marker's broader use of commemorative language, but hardly tell us anything that is specific, or unique, to Texas.

Where the corpus of historical markers asserts Texas' values is via the S tag (social actions, states, and processes). The frequent mention of "community," "family," and "members" directly signifies what is a key feature of a common narrative of Texas. Religion, as shown in "church," "congregation," "baptist," and "Rev.," is another way of signifying community and shared set of values. When new settlers moved west, their lives were typically organized in small communities and by family ties, as the newly born Texas Republic could not afford a regular army to defend its citizens across its vast territory and federal military help was hard to come by, even after annexation to the United States. Texans advancing west also distrusted idealistic and not pragmatic sentiments, arguing that the naïveté of the Eastern states mentality did not fit the reality of the frontier (Fehrenbach 2000). Various scholars have pointed out that a harsh environment, purported superiority over other races, and lack of self-doubt contributed to individualism and lawlessness among Anglo-Texan, historically exemplified by the Texas Revolution and the checkered history of the Texas Rangers (Meinig 1969; Webb 2008; Swanson 2020). In this sense, the uniqueness of Texan society and values were already well known to observers in the 1910s:

In spite of being Southern, Texas is quite different from the Southern states ... In fact, Texans are prone to regard themselves as more different from the rest of the people of the United States than is really the case. "The only difference between Texans and other people," says a cosmopolitan newcomer, "is that they think themselves different."

(Benedict and Lomax 1916, 58)

Table 1. Semantic frequency list of all tags

Rank	Absolute freq.	Relative freq.	Tag	Description	Ten most frequently used words
1	967,764	48%	Z	Names and grammar	the, in, of, and, a, to, was, for, by, Texas
2	177,936	9%	N	Numbers and measurement	first, also, many, one, two, several, part, nearby, more, three
3	149,823	7%	A	General and abstract terms	was, is, property, became, were, buried, had, including, used, other
4	147,886	7%	M	Movement, location, travel, and transport	this, cemetery, area, here, site, county, town, landmark, moved, erected
5	137,351	7%	S	Social actions, states, and processes	community, church, family, served, congregation, members, organized, baptist, Rev., wife
6	101,812	5%	T	Time	historic, new, later, early, years, established, began, old, original, pioneer
7	52,871	3%	H	Architecture, housing, and the home	building, built, home, house, residents, construction, lodge, courthouse, seat, homes
8	45,512	2%	O	Substances, materials, objects, and equipment	marker, structure, cotton, brick, oil, line, frame, stone, water, springs
9	43,620	2%	G	Government and public	state, civil_war, war, army, veterans, president, citizens, military, civic, veteran
10	35,886	2%	I	Money and commerce in industry	purchased, sold, store, business, company, bought, bank, office, businesses, work
11	32,053	2%	Q	Language and communication	recorded, named, name, m. called, charter, point, post, dedicated, Postmaster
12	26,390	1%	X	Psychological actions, states, and processes	known, mission, revival, active, style, system, efforts, reminder, battle, Gen.
13	19,131	1%	L	Life and living things	died, death, burial_ground, cattle, burial, burials, interred, killed, life, lumber
14	19,016	1%	P	Education	school, students, college, schools, education, educational, high_school, university, classes, teachers
15	18,698	1%	W	World and environment	land, River, creek, prairie, hill, world, valley, storm, Mount, Mountain
16	13,359	1%	F	Food and farming	farm, rural, gin, farmers, field, farming, agricultural, farmer, ranching, rancher
17	12,700	1%	B	The body and the	born, Dr., hospital, feet, medical, brush,

				individual	physician, heart, wounded, head
18	7,034	0%	K	Entertainment, sports, and games	played, pass, music, auditorium, band, party, theater, baseball, opera_house, recreation
19	5,848	0%	E	Emotion	popular, depression, grave, rest, peace, resting, care, force, celebration, faith
20	4,221	0%	C	Arts and crafts	designed, design, blacksmith, cultural, arts, art, culture, drew, gallery, craftsman
21	1,922	0%	Y	Science and technology	programs, program, engineer, archeological, engineers, science, engineering, scientific, technology, experiment
<hr/>					
Total	2,020,833	100%			
<hr/>					

Table 2 expands on semantic tag S, listing its twenty (out of fifty-four) most frequent subgroups. (Recall that + signs denote positive meanings while - signs indicate negative ones; Rayson 2003.) Several mistakenly coded terms were manually removed after automatic tagging by WMatrix (Balossi 2014; Collins 2015): for example, “confederate” from S8+ and “no.” from S8-. The resulting list of social themes reaffirms Texas commemoration of community, Christianity, family, and associations and organizations of various kinds. The term “male” (S2.2) is mentioned more often than “female” (S2.1), and nonbinary gender terms are nowhere to be found, which may be due to the absence of such category in USAS. Neutral (absence of + or -) or positive connotations are prevalent, with minus tags S7.1-, S8-, and S1.2.1- attesting to a darker side of Texas history that is less frequently told, including slavery, fights, and the massacre of enemies. The negative sign of tag S5- is a clear outlier, considering that “independence” from Mexico is regarded as the most glorious triumph in Texas history.

Table 2. Semantic frequency list of Tag S

Rank	Absolute freq.	Relative freq.	Tag	Description	Ten most frequently used words
1	29,143	21%	S5+	Belonging to a group	community, congregation, members, association, public, member, group, masonic, federal, membership
2	26,966	20%	S9	Religion and the supernatural	church, baptist, Rev., methodist, pastor, worship, churches, episcopal, presbyterian, catholic, lutheran
3	20,186	15%	S4	Kin	family, wife, families, son, married, descendants, daughter, father, sons, brothers
4	17,539	13%	S8+	Helping	served, services, service, serve, helped, serving, support, help, serves, supported
5	15,708	11%	S7.1+	In power	organized, led, leader, leaders, board, leadership, governor, headquarters, appointed, organize
6	5,518	4%	S2	People	children, and_other, people, population, child, individuals, persons, guests, person, folk
7	2,794	2%	S1.1.1	Social actions, states, and processes: general	tradition, social, traditions, hosted, visited, visitors, traditional, visiting, introduced, visit
8	2,332	2%	S1.1.3+	Social actions, states, and processes: participation	meeting, attended, meetings, participated, conference, reunion, attend, reunions, attending, attendance
9	2,229	2%	S3.1	Personal relationship: general	met, meeting, meet, friends, friend, partner, friendship, partners, associates, accompanied
10	2,212	2%	S2.2	People: male	men, Mr., man, boys, male, boy, bachelor, white_man, white_men, gentleman
11	1,171	1%	S6+	Strong obligation or necessity	need, needs, needed, had_to, duty, resort, necessary, commitment, patriot, duties
12	1,647	1%	S2.1	People: female	women, woman, female, ladies, girls, girl, miss, lady, girlhood, girls_club
13	1,521	1%	S7.1-	No power	slaves, slave, junior, deputy, humble, surrender, surrendered, slavery, devoted, auxiliary
14	1,340	1%	S8-	Hindering	fought, fight, fighting, prevent, blockade, prevented, opposed, opposition, in spite_of, barrier
15	1,211	1%	S5-	Not part of a group	independence, independent, personal, maverick, self, alone, neutral, on_his_own, personally, self-sustaining

16	887	1%	S7.4+	Allowed	allowed, approved, rights, authorized, right, allowing, provided_for, permission, allow, let
17	677	0%	S1.2.1-	Formal/unfriendly	formally, formal, enemy, hostile, hostilities, foe, enemies, hostility, stern, foes
18	530	0%	S1.1.2+	Reciprocal	shared, share, jointly, sharing, responded, rations, mutual, in_cooperation_with, in_return_for, liaison
19	513	0%	S7.2+	Respected	respected, renowned, worshipful, respect, tribute, acclaimed, stately, revered, admired, acclaim
20	443	0%	S1.2.5+	Tough/strong	strong, strength, withstood, sturdy, withstand, tough, strict, strengthened, strengthen, strengthening

---

Table 3 lists tag S occurrences by decade to explore how the narrative of community has changed over time. The top half of the table includes the top ten words for tag S, and the bottom half shows their absolute and relative frequencies. The rightmost column sums up the totals. The 1930s list confirms what we already knew—that what is being commemorated is the centennial of the Texas Revolution, an event that gave birth to the short-lived Republic of Texas (1836–1846). The dominance of military terms in this list is therefore to be expected. In this decade, officials also installed highway markers in almost all counties to celebrate their creation, the origin of their place name, the location of the county seat, and notable local products (Schoen 1938). The term “organized” shows up prominently as it is used to indicate the day the county was established. For instance, below is the text of the highway marker “Dimmit County,” with emphasis added by the author:

Dimmit County  
Created February 1, 1858  
Organized November 2, 1880  
Named in honor of  
Philip Dimmitt,  
a pioneer trader and captain  
in the Texas Army who  
died in 1841  
Carrizo Springs, the county seat

The 1960s can be defined as a transition period, because while still clinging to the 1930s narrative with words such as “confederate,” “served,” and “independence,” a new and less martial narrative, is introduced, as testified by the words “church,” “family,” “children,” “Rev.,” and “community,” in an effort to include more diverse subjects and an eye toward future generations in the hope that they will learn to appreciate and cultivate Texas values as communicated through the markers (Brinkman 2010). From the 1970s and in the subsequent decades the list of themes becomes more consistent, due in great part to the THC’s systematic and coherent supervision efforts. Among the top ten words in the 1970s, six remained on the list until the 2010s (“church,” “family,” “served,” “community,” “members,” and “congregation”), three recur twice in later decades (“Rev.,” “organized,” and “wife”), and “children” reappears once in the 2000s. Thus, it appears that the 1970s established narrative themes that are still popular today.

Table 3. Semantic frequency list of top ten tag-S words per decade

<b>Freq. rank</b>	<b>1930s</b>	<b>1960s</b>	<b>1970s</b>	<b>1980s</b>	<b>1990s</b>	<b>2000s</b>	<b>2010s</b>	<b>Accumulated (2019)</b>								
1	organized	confederate	church	church	church	community	community	community								
2	member	served	family	community	community	church	church	church								
3	independence	men	served	served	family	family	family	family								
4	wife	church	Rev.	family	congregation	served	served	served								
5	served	organized	community	congregation	served	members	members	congregation								
6	confederate	family	organized	members	members	congregation	baptist	members								
7	fought	children	wife	Rev.	baptist	baptist	children	organized								
8	men	independence	children	organized	organized	association	congregation	baptist								
9	commanded	Rev.	members	baptist	Rev.	families	wife	Rev.								
10	federal	community	congregation	wife	serve	children	families	wife								
<b>Freq. rank</b>	<b>1930s</b>		<b>1960s</b>		<b>1970s</b>		<b>1980s</b>		<b>1990s</b>		<b>2000s</b>		<b>2010s</b>		<b>Accumulated (2019)</b>	
	<b>Absol.</b>	<b>Relat.</b>	<b>Absol.</b>	<b>Relat.</b>	<b>Absol.</b>	<b>Relat.</b>	<b>Absol.</b>	<b>Relat.</b>	<b>Absol.</b>	<b>Relat.</b>	<b>Absol.</b>	<b>Relat.</b>	<b>Absol.</b>	<b>Relat.</b>	<b>Absol.</b>	<b>Relat.</b>
1	246	0.5%	534	0.2%	916	0.3%	1,214	0.4%	1,575	0.5%	2,176	0.5%	1,664	0.4%	7,194	0.4%
2	185	0.4%	499	0.2%	627	0.2%	1,198	0.4%	1,499	0.5%	1,523	0.4%	1,379	0.4%	6,995	0.3%
3	101	0.2%	381	0.2%	562	0.2%	1,098	0.3%	1,008	0.3%	1,239	0.3%	902	0.2%	5,154	0.3%
4	97	0.2%	372	0.1%	545	0.2%	1,047	0.3%	958	0.3%	1,169	0.3%	639	0.2%	4,843	0.2%
5	72	0.1%	345	0.1%	486	0.2%	901	0.3%	789	0.2%	1,041	0.2%	500	0.1%	3,505	0.2%
6	51	0.1%	320	0.1%	435	0.2%	722	0.2%	727	0.2%	877	0.2%	411	0.1%	3,476	0.2%
7	47	0.1%	201	0.1%	368	0.1%	596	0.2%	573	0.2%	647	0.1%	408	0.1%	2,891	0.1%
8	43	0.1%	182	0.1%	351	0.1%	549	0.2%	490	0.2%	577	0.1%	398	0.1%	2,507	0.1%
9	39	0.1%	179	0.1%	334	0.1%	530	0.2%	454	0.1%	546	0.1%	377	0.1%	2,410	0.1%
10	34	0.1%	168	0.1%	313	0.1%	438	0.1%	395	0.1%	529	0.1%	360	0.1%	2,174	0.1%
Total	52,069	100.0%	250,186	100.0%	268,431	100.0%	321,425	100.0%	317,347	100.0%	433,619	100.0%	375,196	100.0%	2,020,833	100.0%

To dig further into the spatial aspects of the narrative of commemoration in Texas, I measured the Global and Local Moran's *I* statistics of tag S, with the Global measure highlighting where in Texas community themes maybe concentrated and the Local measure repeating the analysis at the county level. For simplicity, Table 4 only includes the top five S tags, rather than all twenty. Moran's Index values range from -1 to +1, with +1 indicating maximum clustering, -1 maximum dispersion, and 0 denoting a random distribution. All values are positive, with tag S5+ marking the most substantial clustering, and S7.1+ very close to random. Note that the clustering of S5+ terms is greater than the overall pattern. Z-scores and p-values are used to determine Moran's Index's statistical significance. Once the z-score is greater than 1.65 or smaller than -1.65, the p-value falls below 0.1, indicating a 10% likelihood of random distribution. All subcategories are statistically significant at the 99% level, with only S7.1+ significant at the 90% level.

Table 4. Global Moran's *I* statistics

Semantic tag	Description	Moran's Index	z-score	p-value
S5+	Belonging to a group	0.405264	10.893498	0.000000
S9	Religion and the supernatural	0.252745	6.847366	0.000000
S4	Kin	0.403018	10.842311	0.000000
S8+	Helping	0.225071	6.110892	0.000000
S7.1+	In power	0.057696	1.653044	0.098322
Entire markers	(none)	0.358596	9.936300	0.000000

Finally, Figure 8 shows Local Moran's  $I$  statistics by county. Grieve (2012) mapped Global Moran's  $I$  and Local Getis-Ord  $G_i^*$  in 200 American cities to see whether the adverb position in a sentence—in the middle or at the beginning—has a statistically significant regional pattern. I conducted the analysis at the county level rather than the individual marker's one following the general assumption in commemorative studies that memorial activities are unevenly distributed in space for strategic use (Azaryahu and Foote 2008) and that some counties might have used a specific tag more frequently than others. Absolute frequencies enable the straightforward comparison of numbers at the county level, but it is known that the centrality of human activities tends to produce much longer texts in urban areas than in rural lands (Veselka 2000; Dwyer 2004; Bright et al. 2021). Thus, cities' narratives may talk about more topics more often than smaller towns, simply because cities have more to say. To avoid exaggerations or underestimations of this kind, this study uses relative frequencies to measure Local Moran's  $I$ , normalizing absolute values by total word count.

The Local Moran's  $I$  statistics compares each geographical unit to its neighbors to determine whether similar or dissimilar values are clustered together (Anselin 1995). In this study, the statistics compares each county's relative frequency with that of nearby counties with which it shares a boundary. The 254 Texas counties were categorized into five groups: high-high clusters, low-low clusters, high-low outliers, low-high outliers, and not significant (Figure 8). A high-high cluster means a significantly high value surrounded by high values, while a high-low outlier is one high frequency with low neighbors around. Like the white background in the Kernel Density maps, the value "Not significant" for some counties does not imply the absence of tagged words, but rather the

fact that their relative frequencies are not significant.

The resulting maps show high values clustered in the east and low in the west, a pattern also found in the dot and Kernel Density maps. West Texas, a scarcely populated area, shows low-low clusters of S tags even after normalizing for the tag's high occurrence in the eastern counties. Tag S7.1+ shows high-high clusters in the west, but this is largely due to a lack of topical diversity: in the west, themes are consistent over time while in the east there is more diversity. "Organized," the most frequently used term in S7.1+, is the main reason for this lag; as already discussed, these terms refer to the establishment of counties, a topic that was important in the 1930s but that has since slowly faded away. "Organized" occurs twenty-eight times in the high-high clusters, and it seems plausible that its relatively high occurrence in West Texas is due to the fact that there are relatively few community tags in this part of the state and that these are relative to the establishment of counties.

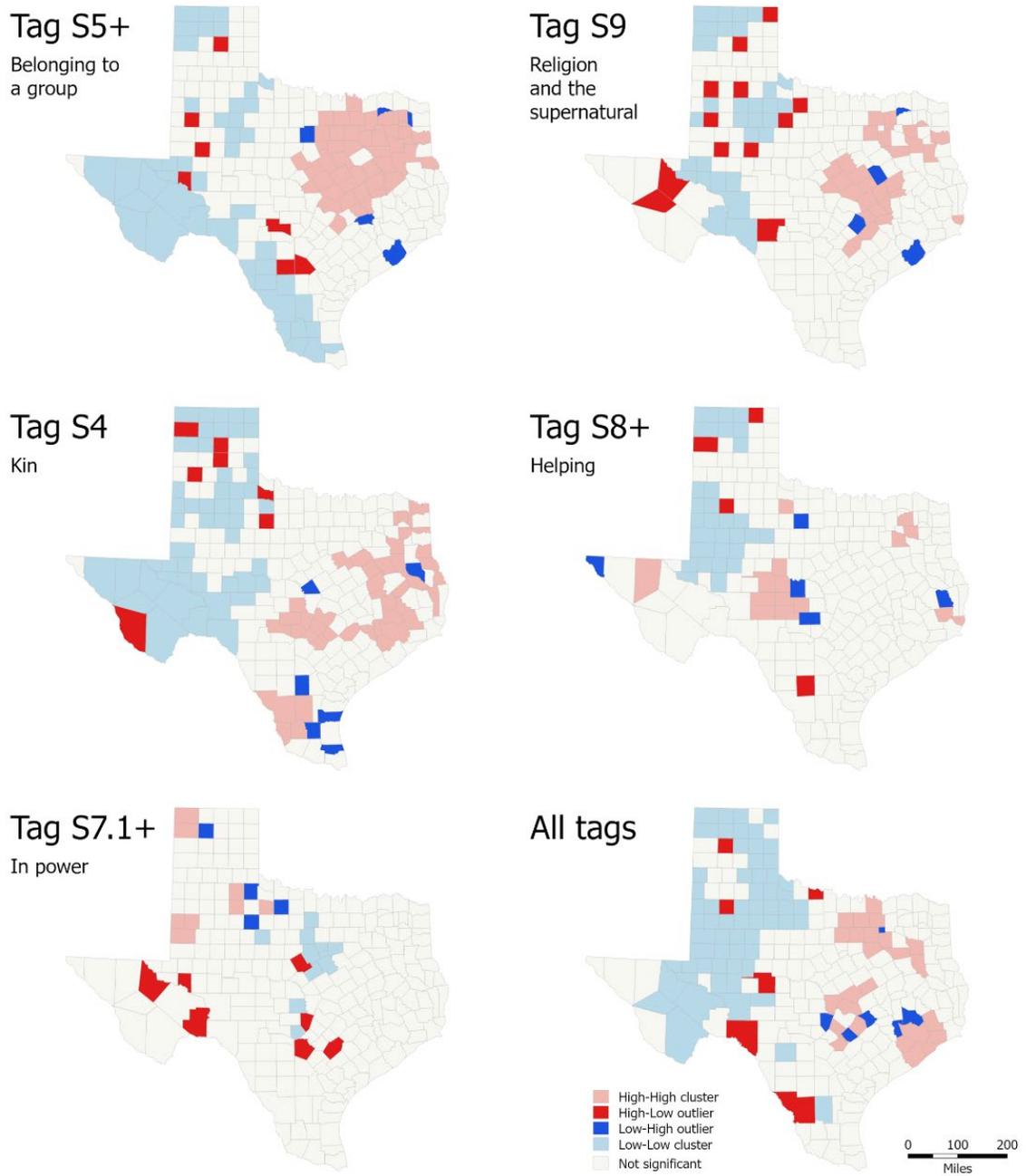


Figure 8. Local Moran's  $I$  statistics of Tag S and of all tags.

## Discussion

This study examines the temporal and thematic patterns of commemoration in the Texas Official Historical Markers, which fit well in the contest of selective memories (Lowenthal 1975; Foote 2003). In search of further significance and explanation, I now move to frame the Texas narrative in the broader context of the history and commemoration practices of the United States. The former determines what is remembered or forgotten in a certain period and fuels political momentum to replace old memories with new ones when a new societal paradigm emerges (Azaryahu 1990; Yeoh 1996; Foote et al. 2000; Levinson 2018). The latter assigns a special mission to the marker as a strategic narrator (Azaryahu and Foote 2008), one that other types of memorials do not fulfill. Overall, in its interaction with national history and commemoration, Texas markers fit the American commemorative narrative, but also present unique characteristics. Both similarities and differences originate in the geographic location of Texas, its relationships with Native Americans, with other states in the United States, with Mexico, and in the arrival of immigrants from abroad. As Meinig (1969) observed, Texas has acted as a conduit in a broader national framework: diverse cultural influences from the United States and Europe interacted with the newly developed idea and political reality of Texas in the nineteenth century in the context of expansionism in the direction of the western frontier. Geography is indeed the key to understanding Texan uniqueness.

The markers program's historical focus largely stems from the centennial and sesquicentennial anniversaries of the Texas Revolution. Mexico established a new

government in 1821 and inherited earlier Spanish colonization policies that recruited Anglo colonists into Texas, aiming to develop the frontier and protect it from the raids of Native Americans (Fehrenbach 2000; Webb 2008). However, Anglo settlers soon came into a conflict of interest with the Mexican government and eventually gained statehood in 1836 after a series of bloodshed battles. Texans in the twentieth century venerates the memory of the Texas Revolution and the brief period of independence; adding a specific and uniquely Texan event to a shared national narrative of commemoration of the Civil War and the two World Wars (Bodnar 1992; Gillis 1994; McMichael 2009). Markers built to honor the Revolution and the Civil War include inscriptions like: “Texas Sesquicentennial 1836–1986,” “Sesquicentennial of Texas Statehood 1845–1995,” “Sam Houston Bicentennial 1793–1993,” or “A memorial to Texans who served the Confederacy.” While ceremonies and commemoration occur everywhere in the United States to keep the memory of the Civil War and/or the two World Wars (Foote 2003), Texas is unique in celebrating its independence in 1936 and 1986.

As already noted, the majority of markers erected between the 1930s and the 2010s are located in East Texas. It is common in memorialization practices for physical objects or commemoration to gather around major cities with large populations (Arreola 1992; Bright et al. 2021), a fact that takes advantage of “symbolic accretion” (Foote 2003; Dwyer 2004; Post 2009). At the scale of the city, commemorative activities typically take place in civic meeting spaces like courthouses, boulevards, plazas, parks, churches, or cemeteries, due to what Veselka (2000) called “centripetal force,” which stems from the marker’s explicit reason to be—to instruct humans. Thus, even if a marker revolves around a landscape element, a force of nature, or flora and fauna, its central

narrative revolves around the impacts of the natural world on humans, such as when artificial barriers are built to prevent a natural disaster, or a valley is memorialized as the site where prehistoric people lived, or an animal is remembered because it provided hunters with meat and fur. Examples include the following:

On Sept. 8, 1900 a devastating hurricane and tidal wave destroyed much of Galveston and left 6000 persons dead. ... As a shield against high waves, a solid concrete wall was built along the Gulf shore of the island. ... Freed from the threat of further destruction, Galveston has grown into a modern and prosperous city.

(Title: The Original Galveston Seawall. Built: Galveston 1975)

... Discovery of prehistoric Malakoff Man carved stone heads near this site in the 20th century revealed that humans inhabited the Trinity valley thousands of years ago. ...

(Title: The Trinity River. Built: Trinidad 1977)

... Was prized by plains Indians for food and fur. To white man a reminder of desert-hard life. In drouth and depression, meat source for thousands. Subject of tall tales. Actual hero of world's only Jackrabbit Rodeo, in Odessa, May 1932.

(Title: The Jackrabbit. Built: Odessa 1964)

The second reason for such a “centripetal force” in the location of markers has to do with the main reason for commemoration: attracting as many readers and patrons as possible (Hanna and Hodder 2015), which is crucial to preserve historical memories across generations. A monument quickly falls into oblivion or even gets physically vandalized once it loses its hegemonic valence, as was the case for monuments toppled after the demise of the communist regime in Hungary (Foote et al. 2000; Levinson 2018). The more markers are located around highly accessible locations, the more they create clusters to take advantage of space as an effective narrative medium (Azaryahu and Foote 2008).

Semantic tags in WMatrix show a transition in commemorated themes from war to peace. Earlier decades saw the intense usage of military terms, especially in the 1930s, with the markers primarily telling the story of Anglo settlers who fought Native American tribes and the Mexican army at the edges of the frontier. From a national perspective, Texas has been defined as a “balkanized borderland” (Jordan 1986), historically situated among Native Americans and Mexicans and connected to the rest of the country and the Atlantic ports for transcontinental migrants. This geographic location exposed Texans to challenges from both outside and inside. Not only did Texans fight (and later commemorated) exterior foes, but they also occasionally fought each other based on racial and ethnic discrimination or the suspicion of treason (Webb 2008). The Houston Riot of 1917, for instance, broke out in response to Jim Crow laws and police harassment of black soldiers assigned to guard Camp Logan in Houston. The incident is described briefly in the marker “Camp Logan,” erected in 1992, but as of today the event has not been granted a separate marker. In the official narrative of Texas, this brutal act of racism only warrants a note in the broader context of the history of a military installation, one that was closed only two years after the riot. The marker was initially to be placed near the Memorial Park’s golf course clubhouse, but opposition from prominent civic groups eventually convinced THC to move it to one of the park’s corners (Salazar 2021). The paragraph describing the riot was vandalized with red paint when it was rededicated in occasion of the riot’s one-hundredth anniversary in 2017. Although the chair of the rededication committee wanted the marker to be moved to a more visible space for security purposes (George 2017), Google Street View shows that as of November 2022 the marker still remains where it was first erected. In another example, in

1918 the Texas Rangers executed fifteen unarmed residents of the border town of Porvenir—now a ghost town—later trying to justify the killing as having occurred during the investigation of a raid that occurred a month earlier (Swanson 2020). The incident came to be called the Porvenir Massacre. A text for a marker commemorating the event was written in 2015 and the marker finally erected in 2018, one hundred years after the tragedy.

Identifying who was friend or foe often meant the difference between life or death in the frontier. In the 1930s and 1960s, descendants of early colonists emphasized the term “independence” as a counteracting force against the Mexican administration and the “confederate” opposing the Union during the Civil War. This worldview of us-versus-them or good-punishes-evil resonates well with Tag S5+ (belonging to a group), the strongest level of clustering shown in Table 4 and Figure 8. “Community,” “congregation,” “members,” “association,” and “public” were the most common S5+ words in the text of the markers. In the 1970s, however, tag S began to adopt a more peaceful meaning, often in relation to religion and family. As already remarked, after this decade the list of most common words remained quite constant—clear proof of intent on the part of the THC—so that it is the celebration of peace rather than war, of unity rather than conflict, that has become the main theme of commemoration in Texas. Terms related to religion—or, to be more specific, Christianity—include “church,” “served,” “members,” “organized,” “baptist,” and “Rev.”; note that some of those terms are also used in military context, reflecting organization and hierarchy. Together with a frontier narrative celebrating individualism and exceptionalism, Texans developed a unique adaptation of the Protestant ethic—“God helps them who help themselves” (Fehrenbach

2000, 720). Socially, this principle worked to amalgamate immigrants from Spain, France, Germany, as well as other regions of the United States, who gathered at community churches to survive in the new land and maintain their identity (Meinig 1969; Jordan 1986). Christian institutions also helped formerly enslaved people develop distinctive cultures and communities after emancipation in 1865. Many old buildings have disappeared, but both these and the ones still existing narrate the story of clergy, believers, benefactors, volunteer workers, and people's collective contributions to a community (e.g., education for social minorities), wielding centripetal force (Veselka 2000) for the markers in East Texas.

Family is another theme that characterizes the peaceful trend that started in the 1970s, as attested by words such as “family,” “children,” and “wife.” Among these terms, “wife” deserves special attention because its frequent usage in early markers signifies an attitude by which women's historical significance was determined by their role within the family. In fact, regardless of rapid social changes in the twentieth century, Texas culture hardly allowed women to dabble in the business of men (Fehrenbach 2000, 719). For example (emphases added by the author):

Mrs. Simona Smith Fisk. Daughter of Erastus “Deaf” Smith and wife of James Nathaniel Fisk. Born in San Antonio October 28, 1829. Died November 11, 1890.

(Title: Mrs. Simona Smith Fisk. Built: San Antonio 1936)

Three miles south to the grave of Elizabeth Crockett, wife of David Crockett, hero of the Alamo. Died March 2, 1860, age 74.

(Title: Elizabeth Crockett. Built: Granbury vicinity 1936)

Richard Ellis. Born in Virginia, February 14, 1781. Associate Justice of the Supreme

Court of Virginia, 1820. Signer of the Texas Declaration of Independence and President of the Constitutional Convention, 1836. Senator in the Congress of the Republic of Texas, 1836 to 1840. Died in Bowie County, Texas, December 20, 1846.

Mary Dandridge Ellis. Wife of Richard Ellis. Born in Virginia, 1787. Died in Bowie County, Texas, October 21, 1837.

Ellis County, Texas was named for Richard Ellis.

(Title: Richard Ellis. Built: Austin 1936)

Even though individual women are memorialized as early as 1936, it is only for their relation to important men, rather than historical agents, that they are remembered (Brinkman 2010; Bright et al. 2021). By contrast, markers do not identify men as “husbands” of someone, because males are remembered for their achievements outside of the home—war heroes, explorers, politicians, businessmen, or religious leaders.

This conservative view of gender slowly started to change due to the influence of the nationwide civil rights movements and of women’s social engagement (Behnken 2012; Boswell 2018). Now that markers have started to memorialize women for their achievements outside the family, the word “wife” has become more and more infrequent. This trend has coincided with the thematic transition from war to peace during the 1970s. For example:

Clara Driscoll (April 2, 1881 – July 17, 1945). ... [S]he learned that the Long Barrack, part of the historic Alamo, was about to be sold as a hotel site. When the state failed to act, she bought the property, using her own funds to supplement money raised by the Daughters of the Republic of Texas. Her gesture sparked public interest and won her the title “Savior of the Alamo.” ...

(Title: Clara Driscoll. Built: San Antonio 1978)

The Woman Suffrage Movement in Texas. ... Legal efforts to enfranchise women in Texas can be traced to 1868, when Rep. T. H. Mundine of Burlson introduced a woman suffrage bill in the state legislature. ... On June 28, 1919, Texas became the 9th state to

ratify the Woman Suffrage (19th) Amendment to the U. S. Constitution.

(Title: The Woman Suffrage Movement in Texas. Built: Austin 1991)

Women Airforce Service Pilots. Jacqueline Cochran, one of the most famous women pilots of the Twentieth Century, persistently lobbied U. S. Army Airforce General Henry “Hap” Arnold to establish a flight training program for women during World War II. ...

(Title: Women Airforce Service Pilots. Built: Sweetwater 1993)

## **Conclusions**

The temporal and thematic biases inscribed in the Texas Official Historical Markers are inseparable from the uniqueness of Texas as a multicultural borderland of Native American tribes, once part of Mexico, and now different than—but very much part of—the United States. Early markers erected during the 1936 celebration of the Texas Revolution celebrate independence from Mexico and battles with Native Americans. This focus on war and martial themes lasted until the 1960s, followed in the 1970s by a celebration of peace, family, community and social advancement, in a trend that continues to this day. The shift corresponds to the establishment of an official marker program in 1962 and is clearly by design. On the other hand, markers have continued to be concentrated in the largest cities and in the eastern half of the state, where most people reside.

Compared with the rest of the country, Texas is uniquely characterized by a temporal bias toward two anniversaries (1936 and 1965) and a thematic shift from war to peace (whether the latter is a national trend remains to be established). When compared with other programs, previous studies remarks on the lack of diversity in

commemoration, as is the case also in Texas. Themes such as the underrepresentation of inhumane slavery labor and plantation topics in North Carolina and Virginia (Alderman 2012; Hanna and Hodder 2015) and a bias toward white males (Jones 1988; Bright et al. 2021) are found also in the Texas marker program. From a methodological standpoint, corpus linguistics and GIS have allowed us to tackle an enormous dataset of over 16,000 markers and over two million words, which makes this study quite unique. Big data methods are applicable and useful at different spatial and temporal scales of analysis, from the state to the city to the county, and from years to decade and to entire study periods. Once the defining theme of one place and/or time is identified, different emphases in other places or times may become apparent, so that the researcher is able to determine what is intentionally remembered or forgotten by the state (Foote 2003). That is, what stories are being told and what stories are being silenced.

Geographers routinely employ the spatiotemporal techniques I have used in this chapter, but here I want to remark on the use of corpus linguistics methods, still relatively novel in geography, as a way to conduct inductive research for future studies of this type. Frequency lists of words and semantic analysis reveal the narrative of a corpus in a way not otherwise possible in a dataset of this size and complexity.

### III. RACIAL AND ETHNIC NARRATIVES IN THE TEXAS HISTORICAL MARKERS PROGRAM

#### Introduction

Commemoration practices in the United States are often geared towards establishing and reinforcing identities, especially when it comes to race and ethnicity. The various groups that constitute American society have largely assimilated into a multicultural and multiethnic population, at the same time also often engaging in brutal conflicts with each other. As soon as they arrived, European settlers started expelling Native Americans from their homelands; in Texas, Anglo settlers gained their independence from Mexico after a series of military engagements; the economic issue of slavery led to the Civil War; World War II saw the internment of U.S. citizens of Japanese ancestry into camps; and the civil rights movement of the mid-twentieth century resulted in the dismantling of shameful racial segregation laws in the South (Bodnar 1992; Gillis 1994; Fehrenbach 2000; Dwyer and Alderman 2008; Conzen et al. 2012; Texas State Historical Association 2022a). The shared memory of these conflicts has helped minorities unite and confront the injustices perpetrated by the dominant groups (Foote 2003; Levinson 2018; Loewen 2019). More recently, the George Floyd protests in 2020 exemplified how commemorative rituals united African Americans in solidarity to challenge racial prejudices imposed on them, with the result that as of February 2022, more than 230 Confederate statues and monuments have been removed, relocated, or

renamed in the period after the murder of Floyd (Burch 2022).

In recent studies, geographers have tracked and interpreted the contested memories of the races and ethnicities that compose the peoples of the United States through the lens of political and economic perspectives that reveal social injustice (Dwyer and Alderman 2008; Rose-Redwood et al. 2010). Such studies can be framed in the context of the “new” cultural geographers that emerged in the 1980s and who viewed the landscape as a text written and read by social agents (Cosgrove and Jackson 1987; Duncan and Duncan 1988; Jackson 1989) and contending that the so-called “common sense” shared in a society is also artificially constructed by social agreements (Cosgrove and Jackson 1987). The text and language metaphor are central to a theoretical framework that sees landscape as “communicative devices that encode and transmit information,” like written and spoken words (Duncan 1990, 4). This is the literary concept of “intertextuality,” which refers to the fact that all texts constantly write and rewrite each other. When defining a text as an object of interpretation, reading situates the text in a context—defined as an ideological structure that social members believe is true (Smith 2017). However, the endless revision of meaning relegates the context to an arbitrary and ephemeral status; what is believed to be true today can be refuted and rejected tomorrow. This upheaval of the accepted “common sense” is especially evident during political revolutions, which replace it with new ideologies and a new common sense that in turn need to be imposed on the citizenry (Azaryahu 1990; Yeoh 1996). Still, this process does not always work as planned. To counteract the dominant social groups’ desire to establish an everlasting narrative, counter-narratives such as the George Floyd protests may emerge. The poststructuralist notion of intertextuality shifted the “new”

cultural geographers' interests toward politics and economy to subvert the conventional interpretation of texts (Cosgrove and Jackson 1987).

While studying commemorations of identity through text, geographers have borrowed theories and techniques from outside their field—especially from linguistics. Examples include Gade's (2003) exploration of the “scriptorial landscapes” of signs; inscriptions, banners, and graffiti in Québec and Catalonia; and Cox et al. (2010) conducted a case study of 9,267 Czech grave markers in Central Texas to measure the linguistic shift from Czech to English. More recent studies have employed corpus linguistics techniques to compute and index digitized texts to solve a variety of research questions (McEnery and Hardie 2012). Murrieta-Flores et al. (2015) counted frequent mentions of three diseases—cholera, diarrhea, and dysentery—in England and Wales during Victorian times to measure their spatial clustering, finding that the combined mentions of these three diseases tend to concentrate in specific regions and that spatial patterns varied from time to time. Poole (2018) studied the debate concerning the establishment of a new copper mine near conservation areas in Tucson, Arizona; by superimposing text onto digital maps, he was able to ascertain that monetary and aesthetic evaluations were differently discussed and attached to specific types of places. Donaldson et al. (2019) similarly visualized the distributions of four keywords—beautiful, picturesque, sublime, and majestic—to describe the landscapes of the Lake District in England. Under the name of “Humanitarian GIS,” Miranker and Giordano (2020) examined the social and news media releases with the techniques of QSR (Qualitative Spatial Representation), ST (Semantic Tripes), and NLP (Natural Language Processing). From the corpus collected from news and tweets, they revealed specific

narratives that the Border Patrol wanted to communicate with the public.

Narratology, the art of temporally sequencing events, has had a crucial impact on commemorative storytelling and its geographic implication. Under its influence, geographers have argued that memorial facilities appropriate historical spaces as a narrative medium at various scales—from a single point to linear routes, complex sequences, and hybrid formats (Azaryahu and Foote 2008). Narratologists also employ a poststructuralist concept of text, one in which narratives are constructed by social agreements and understood differently depending on context. Since writing and rewriting allow multiple interpretations of one narrative, geographers' role is to anchor those diverse readings in space, for example by explaining regional uniqueness or by mapping a character's travel route. This anchoring process creates spatial patterns that work as narrative sequences and that can help readers make sense of the complicated interactions that occur in a text (Foote and Azaryahu 2007; Bodenhamer 2015; Ryan et al. 2016). Such an approach can be extended to the visualization of spatiotemporal storyline of testimonies, interviews, or historical records with the help of two- or three-dimensional digital representations (Kwan 2002; Watts 2010; Giordano and Holian 2014; Ethington and Toyosawa 2015). Kwan and Ding (2008) named this combined approach “geo-narrative” and added theoretical depth to the technology by tracking how everyday experiences and actions build identity.

GIS has turned out to be fundamental tools in collaborative studies on public memory, as exemplified in the humanities' “spatial turn” in the late twentieth century (Bodenhamer 2015; Ryan et al. 2016; Giordano 2019), in which humanities scholars have started incorporating spatial questions in their research; geographers and GIScientists

have also benefitted from this interaction, which has led to the elaboration of interdisciplinary advances in GIS, such as critical GIS, historical GIS, humanities GIS, qualitative GIS, and the GIS of place (Knowles 2002; O’Sullivan 2006; Pavlovskaya 2006; Knowles 2008; Cope and Elwood 2009; Travis 2015; Giordano and Cole 2018). GIS and GIScience’s data management, analysis, and visualization capabilities offer a point of entrance to the exploration of complex spatial patterns (Bodenhamer et al. 2010), including in commemoration studies. See, for example, Tretter’s (2011) distribution maps of commemorative facilities, or Hanna and Hodder (2015) remark that the absence of slavery and emancipation as topics of commemoration in Fredericksburg, Virginia, can be seen in view of the competition between old Civil War themes of commemoration and an emergent—but not yet fully formed—narrative that privileges the perspective of the formerly enslaved. Finally, Bright et al. (2021) employ GIS techniques to categorize and visualize the relationships between historical markers and census demographics, effectively showing how non-white males are disenfranchised in Tennessee markers.

Commemorative studies tend to adopt mixed methods analytical frameworks in order to take advantage of quantitative and qualitative tools and techniques and overcome the limitations of both (Elwood 2010). By doing so, researchers are in the position of questioning both “where” the memory is (Foote and Azaryahu 2007) and “how” it is narrated (Conzen et al. 1992). Mixed methods in memorial studies often consists of selecting words of interest in the commemorative text and counting their frequencies, although some researchers have moved beyond the word’s literal meaning and have employed discourse analysis techniques to reveal more abstract overtones (Sutherland 2005; Dittmer 2010) with the objective of grasping invisible realities through the reading

of visible texts. The topic most often researched by the “new” cultural geographers is the treatment of racial and ethnic minorities and their underrepresentation and/or stigmatization. Preliminary categorization of terms and word counts in these studies precede discourse analysis because these authors usually start from the assumption that uncomfortable realities are revealed only after debunking everyday language’s ostensible innocence (Rose-Redwood et al. 2010). Thus, while recent memorial texts testify to racial strife, the mainstream narrative in the United States is still dominated by white males’ lingering hegemony (Kwan 2002; Alderman 2012; Hanna and Hodder 2015; Bright et al. 2021).

One methodological characteristic of many of the above studies is that the terms selected for analysis are chosen before the text is read in its entirety. In other words, these studies employ a deductive approach. For instance, Hanna and Hodder (2015) use categories such as “Native American,” “Segregation or civil rights,” and “Slavery or emancipation” to categorize monument inscriptions. In this study, I employ an inductive approach using corpus linguistics, a technique relatively new to commemorative studies. Corpus linguistics is used to compute and index large bodies of digitized text (corpus) in order to figure out their grammatical patterns, thoughts, and sentiments (McEnery and Hardie 2012). Corpus linguistics may benefit commemoration scholars in two ways. First, this big data technique allows the exploration of patterns in large bodies of text, similarly to what GIS can do with large spatial databases. Word frequency counts provide a window into which themes are commemorated. Thus, in this study, the term “African American” emerges as a key element of commemoration because it is one of the most frequently mentioned terms in the corpus, regardless of any propensity on the part of this

author to explore the topic. This happens because corpus linguistics shifts the analytical focus from the researcher to the commemorative inscription itself (Rayson 2008).

Second, semantical analysis may reveal hidden intentions or sentiments beyond the lexical meaning of the individual term because words and phrases can be placed in context to disambiguate their grammatical usage and implication, satisfying the “how” question posed by discourse analysis (Kwan and Ding 2008). This process is called tagging in corpus linguistics (Garside and Smith 1997; Rayson 2003; Prentice 2010; Collins 2015; Can and Cangir 2022; López-Rodríguez 2022). Combined with quantitative summaries of word frequency, semantical analysis can reveal general or specific trends in corpora of millions of words, as is the case for the Texas historical markers program. Thus, the exceptional emerges as does the normal, as it should be, since the exceptional can open a window into what is not immediately visible (Conzen et al. 1992).

The “commemorative texts” mentioned so far include statue inscriptions, street names, and captions attached to museum artifacts, but it is in the study of historical markers that corpus linguistics is especially useful. A historical marker is a small, durable object inscribed with inscriptions commemorating historical sites, individuals, societies, events, architecture, and other significant topics. These inscriptions tend to be long and articulated narratives, difficult to analyze at scale when there are many of them.

This study analyzes the Texas Official Historical Markers program through a combination of linguistics, narratology, and GIS methods to incorporate the “how” and “why” in the study of racial and ethnic narratives. The Texas official commemoration program has been reviewed in some detail elsewhere (Christian 2005; Beeman and Utley 2008; Brinkman 2010), but never in its entirety. The program’s massive size—more than

sixteen thousand markers and over two million words—is ideally suited to being explored with corpus linguistics methods and with GIS (as I do elsewhere). Marker narratives also call for qualitative analysis, in recognition of the fact that the history of Texas is characterized by a myriad of conflicts and reconciliations among different groups (e.g., Native Americans, European Americans, Hispanics, African Americans, and Asian Americans) and by the central role played by its victorious war of independence from Mexico in 1836. Many authors have highlighted Texas uniqueness, something Texans are stereotypically proud of (Meinig 1969; Jordan 1986; Barr 1988; Fehrenbach 2000; Campbell 2003), but none have used its vast commemorative program to actually answer the question of how the state commemorate its unique history. This is the objective of my dissertation, and in this chapter I focus on one aspect of the narrative—race and ethnicity—to contribute to, and situate my work in, a larger academic debate.

### **Data and methods**

The Texas Historical Commission (THC) has been administering the Texas Official Historical Marker program since 1962. Markers erected for the centennial anniversary of the Texas Revolution (1936) were typically made of granite and came in different shapes, colors, sizes, and engraving styles; the text engraved was shorter than in today’s aluminum plates (Schoen 1938; Brinkman 2010). THC updates its markers dataset every first day of the month on its official website (<https://atlas.thc.texas.gov/>) and allows the free download of the dataset’s latest version. Monthly updates include the

addition of newly built markers, the correction of errors, and the filling up of missing information. Users can view the markers on THC's interactive map, and also see maps of sites listed in the National Register of Historic Places, as well as other state landmarks and the location of the state's historic cemeteries.

The marker dataset is provided in .csv and .shp format to allow users to open, view, and modify the data in a GIS environment. This study is relative to the THC datasets as of June 1, 2022. Once downloaded, the data were preprocessed, which involved filling up missing information (year of erection, latitude/longitude, and inscription), correcting diacritic marks, and counting the number of racial/ethnic words per marker. The following user-provided online databases helped supplement the missing element of the official dataset:

- Hmdb.org (<https://www.hmdb.org/>): Markers' text, erected year, latitude/longitude, and timestamped photographs as uploaded by internet users;
- Waymarking.com (<https://www.waymarking.com/default.aspx>): Markers' text, erected year, latitude/longitude, and timestamped photographs as uploaded by internet users;
- Weebly.com (<https://texashistoricalmarkers.weebly.com/>): Markers' text, erected year, and latitude/longitude. Photographs too, but with no timestamp;
- Wikipedia.org ([https://en.wikipedia.org/wiki/List\\_of\\_Recorded\\_Texas\\_Historic\\_Landmarks\\_\(Anderson-Callahan\)](https://en.wikipedia.org/wiki/List_of_Recorded_Texas_Historic_Landmarks_(Anderson-Callahan))): List of the Registered Texas Historic Landmarks (RTHL), in which the THC markers are erected to proclaim each building's RTHL designation. Latitude and longitude are assigned to nearly all

records, but not all photographs are timestamped;

- Findagrave.com (<https://www.findagrave.com/cemetery>): Cemeteries or gravestones with historical markers. Cemetery's latitude/longitude and timestamped photographs are uploaded by internet users.

To complete the preprocessing stage (details in Chapter I), I removed markers erected later than 2019 to facilitate temporal analysis by decade. The final dataset contained 2,141,918 words inscribed in 16,235 markers.

I performed corpus linguistics analysis on the Texas historical markers dataset using WMatrix (Rayson 2003). The software performs three main functions. First, it generates two frequency lists. One tabulates all the words, while the other classifies words by part of speech (POS) based on CLAWS4 (Constituent Likelihood Automatic Word-tagging System; Garside and Smith 1997). The word and POS frequency lists highlight the most prominent lexical and grammatical features of the text analyzed (Rayson 2008; Knowles et al. 2019). Second, WMatrix analyzes collocation—the occurrence of two or more words within a short distance of each other (Rayson 2003, 16)—and identifies statistically significant word combinations within a span of one or more words. There is no agreement on the “best” size of a word span, but for texts in English corpus linguists usually employ a span of four words to the left and right of the word analyzed (Stubbs 1995; McEnery and Hardie 2012). Collocation is often used to infer the narrator's underlying intention, ideology, or assumption when he or she uses a word (Pietraszewska, 2013; Murrieta-Flores et al. 2015; Brezina 2018; Can and Cangir 2022). Third, WMatrix highlights semantic collocates to identify each word's role and

usage within a sentence. For instance, users can organize the terms “happy,” “sad,” and “angry” into a single category of “emotion” to examine the sentimental discourse running through a corpus. To do so, in a way similar to how CLAWS4 is used for POS, the tool uses an automatic tagging system called the UCREL Semantic Analysis System (USAS), developed by the University Centre for Computer Corpus Research on Language (UCREL) at the University of Lancaster in the United Kingdom. The system uses a customized version of the *Longman Lexicon of Contemporary English* in which words are subdivided into twenty-one semantic categories identified by alphabet letters. These are further subdivided into 232 subsets (Rayson 2003). For instance, Tag S relates to terms relative to social actions, states, and processes; S2 refers to people in general and S2.1 to human females. Comparing word and semantic collocates is a fundamental step in discourse analysis because the former examines words within the text while the latter allows the researcher to start inferring the intentions and mindset of the narrator—the THC in this case (Rayson 2008; Can and Cangır 2022).

Although WMatrix can help answer the questions of “what” and “how,” inquiries about the “where” and “when” also matter. The issue of “when” is worth examining because its commemoration trends tend to vary over space and time. To look for spatiotemporal patterns in the text of historical markers, I used SaTScan, a software that has been used to identify clusters of place names, mentions of disease in historical documents, the locational risk of unhealthy farmworkers, and the number of COVID patients before and after lockdown policies (Wang et al. 2006; Murrieta-Flores et al. 2015; Deka 2019; Chow et al. 2020), among many others. For this study, I used SaTScan to answer the question of “where” and “when” a certain word was most used. To conduct

the analysis, I selected the Poisson model option to measure the probability of word occurrences in space and time. Monte Carlo replication in SaTScan enhanced the robustness of results by comparing 1,000 independent trials—the original data plus 999 randomized permutations (Turnbull et al. 1989; Kulldorff et al. 2005)—which increased the p-value to 0.001. I organized the data by decade to be consistent with the analysis done in Chapter II and to reduce the analysis to a computationally manageable size.

The Poisson model of space-time clusters requires three input files: geographic coordinates, case, and population. The Texas dataset assigns a pair of latitude and longitude coordinates to each marker, which is therefore recorded as a point, the spatial unit used in Kulldorff (1997). SaTScan was initially designed for epidemiologists, hence the word “case” for patients. In this study, “cases” are specifically racial/ethnic terms. The tool determines the odds of a marker mentioning a certain word by chance, starting with a null hypothesis that all words in the text of marker are randomly chosen. A cluster is found once this hypothesis is rejected, indicating that spatial and temporal patterns in the usage of words are present and are statistically significant.

Output clusters are displayed as circles on the ground and are mappable in GIS. The circle becomes a spatiotemporal cylinder on the y-axis. The smallest possible cluster with time contains only one marker and has a radius of zero; the cluster can be so large that it may include 50% of all words in the dataset. There is no consensus on proper cluster size, as this depends on the analysis’ objective and variables. Some researchers have conducted multiple tests—using clusters of 10%, 20%, ..., and 50%—to determine the best fit for their model (Deka 2019; Chow et al. 2020). Following Kulldorff’s (1997) recommendations, this study sets a cluster’s maximum size at the 50% level.

## Results

### Textual analysis: quantitative summaries

Table 5 shows the twenty words most frequently mentioned in Texas markers, subdivided by categories. The first column lists the most frequently used terms, and the next four list the most frequent adjectives, common and proper nouns, and verbs. Most are words typically found in any vast English language corpus (“a,” “the,” “in,” “of,” etc.) but others are more specific (“Texas,” “church,” “cemetery”). WMatrix detected word pairs like “United\_States” and counted them as a single word and a proper noun instead of splitting them into a verb (“united”) and a common noun (“states”). The tool also lists together words such as “american,” which includes all possible forms of the term as they appear in the dataset: “American,” “AMERICAN,” and “american.” (Such variations can occur because this is how the word is spelled on the marker or because of typing or processing errors.) Lastly, WMatrix disambiguated each word’s POS depending on its context and linguistic pattern as detected from the corpus (Rayson 2003). By doing so, WMatrix is capable of, for example, differentiating the adjective from the noun from of the term “native.” “American,” “mexican,” “african,” “indian,” and “german” were also recorded both as nouns and adjectives, although they do not appear in the table, which only includes the top twenty terms by category.

However, it is well known that the automatic disambiguation process is not entirely reliable and usually requires manual corrections (Balossi 2014; Collins 2015). This happens in this study, too. For example, WMatrix initially categorized as adjectives the word “civil\_war” (mentioned 2,216 times), “baptist” (1,507), and “methodist\_church”

(1,399), and I had to manually reclassify them as nouns. In the proper noun column, I also merged “U.S.” (889) with “U.\_S.” (537) and changed the ranking of the term accordingly. “Texas\_1936” (799) and “Texas\_Sesquicentennial” (436) were removed from the list of the top twenty proper nouns because they appear at the end of many inscriptions to mark the occasion for the erection of the marker, as in “Erected by the state of Texas 1936” and “Texas Sesquicentennial 1836–1986” (Schoen 1938).

Overall, the POS table supports the notion that Texas’ uniqueness derives from its geography as a multicultural borderland (Meinig 1969; Jordan 1986; Fehrenbach 2000). Given the marker’s nature as a historical text, it is not surprising that most adjectives relate to time (“historic,” “new,” “early,” and “old”). The distinctive characteristic of the Texas narrative is more forcefully witnessed by race and ethnicity (“mexican,” “african,” “indian,” and “german”), with the other adjectives primarily referring to historical or geographical significance (“original,” “nearby,” “prominent,” “oldest,” and “present”). Somewhat surprisingly, “small” is found more often than “large”—this to remark on the state’s progress from a humble start to the current prosperity; examples include a big church which started from a “small building” (“Harmony Baptist Church”), a “small community” of ethnic settlers (“Gruenau Turn and Schuetzen Verein”), and a “small group” of people gathering in association (“The Woman’s Study Club of Holland”). Such examples of historical contrast are a popular literary technique used to add dramatic flavors to the storytelling.

Geographic themes dominate the common nouns list, with a majority related to types of buildings (“church,” “cemetery,” “school,” “building,” “house,” and “home”) and others denoting place more broadly (“community,” “area,” “site,” “land,” and

“property”). Administrative units also appear, as is to be expected in a state program (“state,” “county,” and “town”). This wide array of geographic reference is due to the marker’s versatile spatiality: markers can tell stories that have occurred not only at one location, but also along a route or in a region (Azaryahu and Foote 2008). The geographic specificity of Texas stands out more conspicuously in the proper nouns list. Of course, “Texas” is one of the most used terms, but it is interesting to note that “Mexico” is more frequent than “United\_States,” due to its being closely intertwined with the history and geography of Texas, especially in the 1800s. The term “civil\_war” is also prominent, due to the erection of hundreds of markers in occasion of the centennial anniversary of the Civil War (1961–1965; Beeman and Utley 2008).

Table 5. Word and POS frequency lists

Rank	Overall		Adjectives		Common nouns		Proper nouns		Verbs	
	Word	Freq.	Word	Freq.	Word	Freq.	Word	Freq.	Word	Freq.
1	the	145,639	historic	5,188	church	10,899	Texas	16,859	was	32,616
2	in	73,975	new	4,413	cemetery	10,713	civil_war	2,216	were	8,447
3	of	72,508	early	3,471	community	7,194	U.S.	1,426	is	8,215
4	and	71,766	local	2,769	area	6,508	Houston	1,184	became	4,046
5	a	46,847	other	1,955	site	6,454	San_Antonio	1,031	had	3,789
6	to	35,018	original	1,742	school	6,252	Mexico	893	recorded	3,372
7	was	32,616	old	1,741	building	6,195	Austin	869	has	3,170
8	for	19,740	native	1,644	land	5,720	Galveston	739	began	2,918
9	by	17,806	american	1,453	state	5,453	United_States	728	served	2,883
10	Texas	16,915	small	1,126	family	5,154	Dallas	688	are	2,689
11	as	16,146	mexican	1,100	property	4,741	Tennessee	573	built	2,681
12	this	13,444	african	1,082	county	4,188	John	560	known	2,509
13	's	12,151	nearby	1,071	town	3,915	Fort_Worth	511	built	2,504
14	on	12,100	prominent	1,014	house	3,675	Santa_Fe	408	died	2,353
15	church	10,905	oldest	990	landmark	3,585	Alabama	402	buried	2,261
16	cemetery	10,717	large	986	years	3,524	Rio_Grande	399	named	2,158
17	first	10,615	indian	978	congregation	3,505	William	394	erected	1,969
18	with	10,498	present	972	members	3,475	Pacific	354	served	1,960
19	his	10,124	military	962	home	3,109	Corpus_Christi	353	been	1,935
20	from	9,933	german	898	marker	2,849	Missouri	348	established	1,927

Finally, the preponderance of the past tense form of verbs attests to the historical and commemorative nature of the dataset. The terms “built” and “served” are recorded twice as a past tense and as a past participle. Following the three forms of the verb “be” at the top of the list, “became” registers both the passage of time and the change of landscape. “Recorded” is mainly used as a signature, as in “Recorded Texas Historical Landmark.” Several entries are typical of the 1936 markers: “served,” “died,” “buried,” and “erected.” These markers celebrate the heroes of the Texas Revolution, noting their military rank and affiliation, the battles fought, and the date they died. In 1936, markers were also erected along highways to introduce travelers to a certain county’s history, typically with information about when the county was established and where it derived its name from.

In addition to their commemorative nature of places and events, the markers also tell the unique history of the peoples of Texas. The five most frequent racial/ethnic words are “indian” (mentioned 2,055 times), “mexican” (1,281), “german” (1,256), “african” (1,213), and “spanish” (884). Included in the word counts are all forms of a term—singular and plural, upper and lower cases. Depending on context, these terms may refer to people, languages, architectural styles, etc. To explore the racial and ethnic theme, Table 6 includes terms that do not appear in the top twenty list but are variations of the five terms listed above, including “native,” “black,” and “negro” to testify to historical changes in American linguistic practice (Martin 1991; Bennett 2000; Humes and Hogan 2009). The words’ polysemy demanded a close reading to remove usages of no interest to this study, such as when “black” refers to a color or to a last name. Manual checking dramatically reduced the count of “native” from 1,776 to 135, and of “black” from 1,208

to 478. “Negro” had no other meanings than race in the corpus. I also excluded markers erected in the 1940s and 1950s, twenty years in which only twenty new markers were installed. None of the racial/ethnic words in Table 6 were mentioned more than five times from 1940 to 1959.

Table 6. Word frequency list by decade

Decade	indian	native	mexican	german	african	black	negro	spanish	Total word
1930s	260	1	97	18	0	2	2	41	51,525
1960s	760	8	223	107	2	1	26	168	263,616
1970s	476	1	170	154	5	64	25	118	287,440
1980s	193	1	150	256	22	146	5	108	342,061
1990s	120	20	196	207	175	30	11	123	337,259
2000s	123	45	203	268	439	94	21	163	459,534
2010s	118	59	241	246	570	141	29	161	398,020
Total	2,050	135	1,280	1,256	1,213	478	119	882	2,139,455

Table 6 clearly illustrates that the official Texas historical markers program memorializes some groups more often than others and that this preference changes over time. The word “indian” is the most frequent (2,055) overall and also the most frequent until the 1970s. “African” remains rare until the 1990s, when the terms started to be used together with “American” to replace “black” or “negro,” used in previous decades. The term “negro” came under scrutiny by activists—who favored “black”—in the 1960s (Martin 1991), but the Texas markers program kept using it until the 2010s; this, however, only in conjunction with the names of social organizations or buildings. The use of “black” almost disappeared in the 1990s but gradually regained popularity in the

subsequent three decades. “African” suddenly appears after Reverend Jesse Jackson proposed the term “African American” in 1988. The most prominent feature of “african” is its increasing frequency of use, which stands in contrast with other racial and ethnic terms, whose popularity tend to come and go. Overall, the 1990s are a turning point for cultural diversity as the new entries “native” and “african” became more and more used.

The word counts in Tables 5 and 6 are absolute and therefore must be taken with caution when comparing across decades, as there is a risk of over- or under-representation. Relative frequencies (Figure 9)—obtained by dividing absolute frequencies by total word count—are more appropriate indications of relevance (Rayson 2008; Balossi 2014; López-Rodríguez 2022). Note how the absolute frequency value (left) for the combination “indian+native” peaked in the 1960s, but its relative frequency—and therefore its prominent role as a topic for commemoration—was actually much higher in the 1930s. In the case of “african+black+negro,” the relative frequencies confirm a steep increase in the 1990s and in the two decades that followed, such increase is not as strong as Table 6 would suggest. All other groups remained below the .1% value, except for “mexican” in the 1930s, a result of the 1936 commemoration of Texas independence (Note that 98% of the 1930s markers—1,078 out of 1,095—were erected in 1936). The term “spanish,” in reference to the rulers of Texas before Mexico, mirrors the pattern of Mexico in most decades, in spite of Spain’s defeat in 1821. Poyo and Hinojosa (1988) note that the early Texas historians downplayed the Spanish colonial system as “pervasively backward, irrational, inferior” and emphasized the enlightening role of Anglo Americans against “ignorance and despotism.”

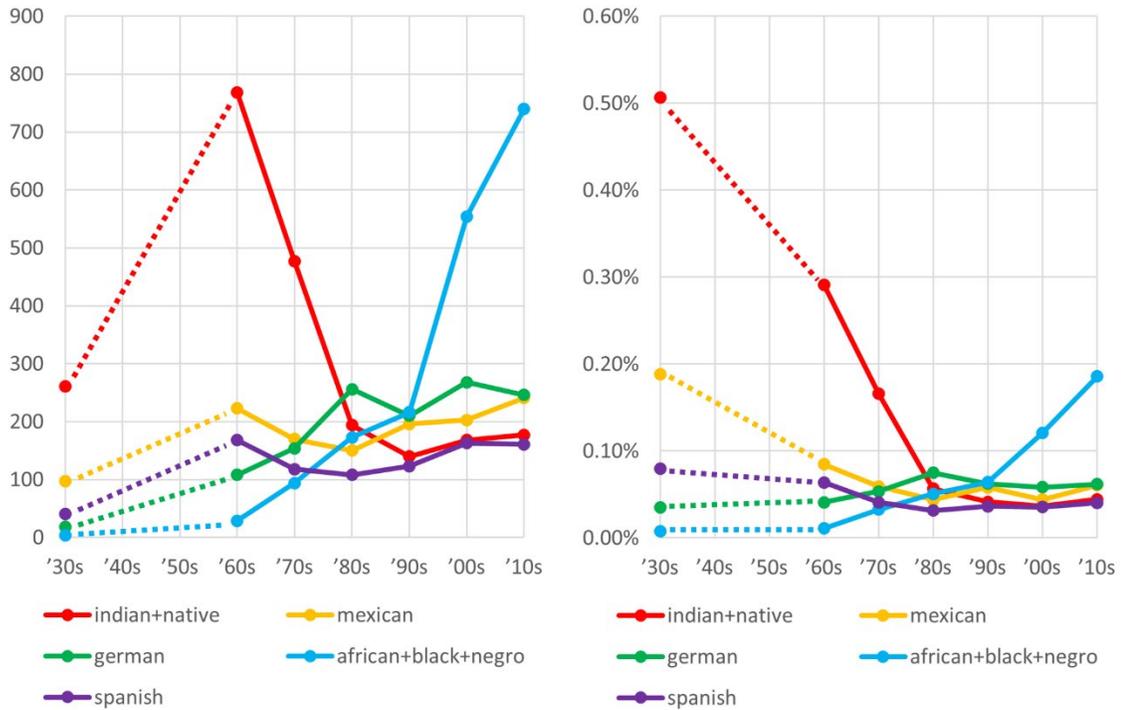


Figure 9. Word frequency by decade. The charts show the absolute (left) and relative (right) frequencies. The 1930s and 1960s are connected by dashed lines to indicate the hiatus during the 1940s and 1950s.

Overall, the analysis of relative frequencies flattens temporal differences. With the exception of “indian+native” until the 1980s, “mexican” in 1936, and “african+black+negro” since the 1990s, the Texas historical markers program is quite consistent when it comes to which groups are commemorated. On the other hand, the space-time scan statistic of SaTScan reveals local differences that are not evident at the scale of the state (Figure 10), while also confirming that sites of commemoration tend to concentrate around the most populous cities for public attention and support (Veselka 2000; Foote 2003; Dwyer 2004; Post 2009). This tends to occur in commemoration practices outside of Texas as well, influenced by cultural traditions and the heritage of specific places (Foote et al. 2000; Otterstrom and Davis 2016; Bright et al. 2021). Figure

10 summarizes the results of SaTScan analysis, and Table 7 includes information on the statistically significant clusters identified in Figure 10. Note that each cluster's statistical significance is defined by the p-value and the log-likelihood ratio (LLR): high LLR values indicate a low probability that a cluster may occur by chance (Kulldorff 1997). As concerning the p-values, a cluster is generally statistically significant when its p-value is less than 0.1 (confidence level of 90%) or less than 0.01 (99%). Thus, the fifteen clusters in Figure 10 are all statistically significant.

The cluster for the combined terms “indian+native” is by far the largest in size and also the earliest in time (1930s–1970s). It is centered in the western part of the state, historically a frontier land into which Anglo settlers moved, often finding only little water and vegetation but plenty of chances to encounter Native American tribes (Meinig 1969; Fehrenbach 2000; Webb 2008). Note that “indian+native” markers are also numerous in Fort Worth, Austin, and San Antonio, cities that have all played a prominent role in the history of the “Old West.” The large size of the western cluster tells us that the pair “indian” and “native” is dispersed enough that smallest, more localized clusters, do not emerge. As for the topics of the markers, they memorialize violent encounters for the most part: for example, whites fighting Native Americans at Forts Belknap and Clark (in Newcastle and Brackettville); a ranch established after the removal of nomadic buffalo hunters in northwest Texas (in Lubbock); the victims of multiple Indian attacks (in Junction); or a compassionate Indian agent murdered by a white man (in Newcastle). Others memorialize the collaboration between Indians and the U.S. army, as is the case with Seminole scouts (in Brackettville) and with Tonkawas serving the Confederacy (in Newcastle).

The word “mexican” forms two clusters, one in South Texas that extends as far north as San Antonio and is the result of the settlement and migration of Hispanics to the area (Jordan 1986), and the other centered in El Paso in the western part of the state. In the latter, a marker celebrates the construction of the Franklin Canal, built for irrigation on both sides of the international boundary—the Rio Grande. While El Paso’s cluster is large, small clusters, temporally and geographically concentrated, are found around Nacogdoches and Abilene in different regions of the state. In Nacogdoches, four markers surrounding city hall refer to “mexican” fifteen times in total (1979, 2008, 2009, and 2019). In the case of Abilene, there is only a single marker, “Mexican-American/Americanization School,” but in it “mexican” is used ten times (1997). This is not the case for the El Paso cluster: in only three markers the term occurs more than twice, with a maximum of five in the “Trinidad Concha” marker. Perhaps this is because the population of El Paso is overwhelmingly Hispanic.

For those who know the history of the state, the size and location of the “german” cluster in central Texas is no surprise; the LLR value is second only to “native+indian,” indicating high statistical significance. German migrants predominantly settled in Fredericksburg, New Braunfels, and Industry (Jordan 1986) in the central part of the state, but two small clusters are found near each other (4.7 miles) in Dallas. The term “german” is used eight times in the marker “Sons of Hermann in Dallas” (2011) and also eight times in two separate markers—four times each in “St. Paul’s Evangelical and Reformed Church” in 1989 and “Zion Lutheran Church” in 2006.

As concerns the term “afrcian+black+negro,” two clusters are statistically significant, the first and largest in east Texas for the decades 2000s and 2010s. Note that

this cluster does not extend to Dallas because the term is also quite frequently used in the city in markers erected in the 1980s. The second cluster includes Shamrock and Wichita Falls in the 2010s. The two cities share similar commemorative narratives centered around African-American churches and schools. Additionally, a marker in Shamrock tells the story of African American soldiers helping move Native Americans to reservations (“Buffalo Soldiers at Fort Elliott,” 2012) and one in Wichita Falls commemorate the influx of Black immigrants attracted by the oil boom of 1918 (“Dr. Annie Davis Roark,” 2016).

Finally, the spatiotemporal clusters for “spanish” are not as well defined as for the other terms: most clusters are small and far from each other, and the highest LLR score here is the lowest recorded (Table 7). The two clusters with relatively high LLR score include three cities which came to prominence during the Spanish colonial era from 1690 to 1821: San Antonio, Goliad, and Nacogdoches (Meinig 1969). The third cluster around El Paso is similar spatially and especially temporally to the cluster for the term “mexican.” In Amarillo identical markers were placed around the city in 1965: their text refers to the city’s origin, “Arroyo Amarillo,” the Spanish name given to a nearby creek. The cluster, however, is short-lived and in fact the term was not used in any other city marker from 1974 to 2011 (“American Legion Hanson Post No. 54”). The fifth cluster is very small and only contains one marker in Wills Point: in it, the term “spanish” recurs six times (“Philip Nolan Expeditions into Spanish Texas,” 2014).

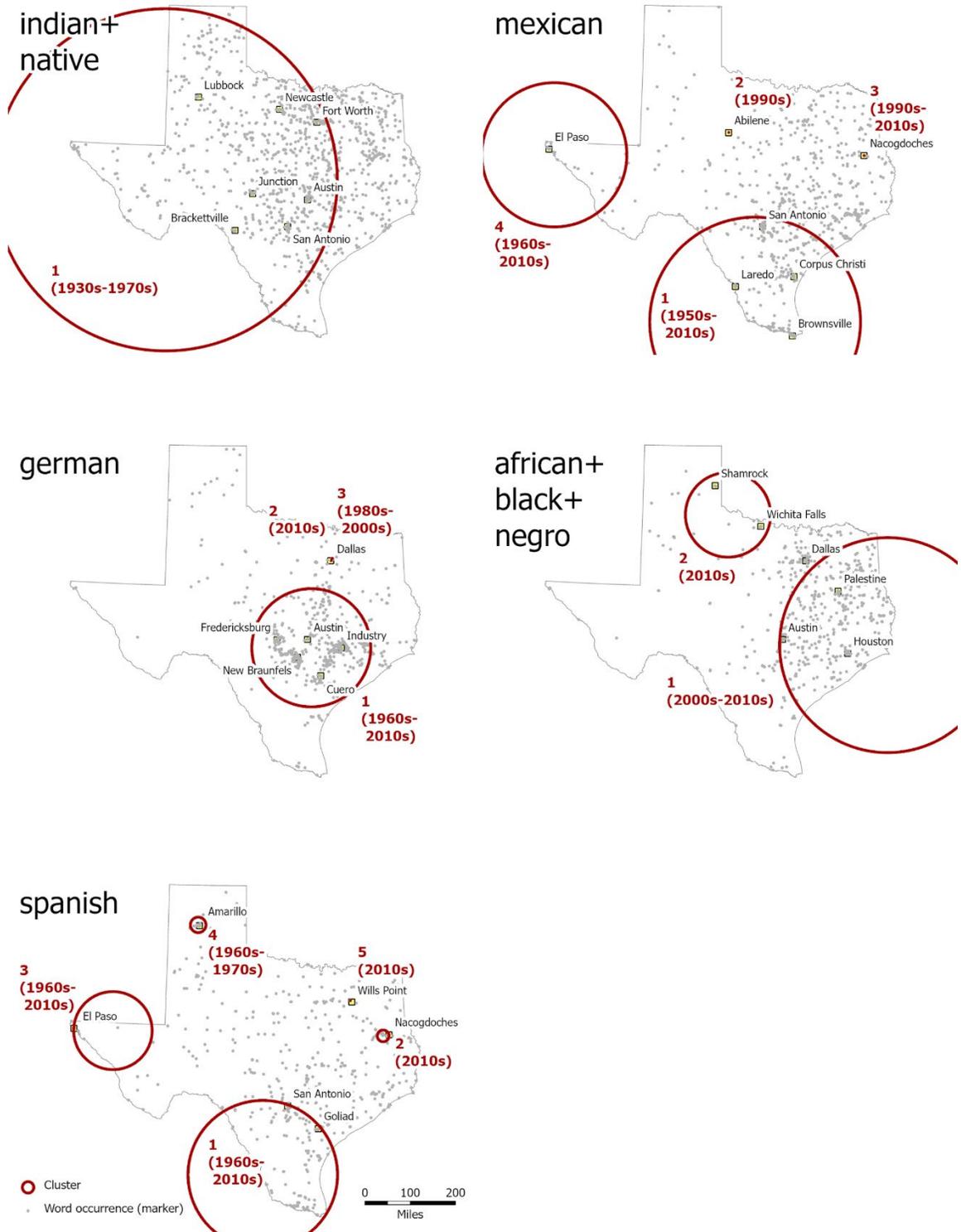


Figure 10. Space-time clusters (p-value  $\leq 0.001$ ).

Table 7. Space-time clusters (p-value  $\leq$  0.001).

Word	Cluster rank	Radius (km)	Start year	End year	Number of word markers	Number of total markers	LLR	p-value
indian+native	1	609.925	1930	1979	725	8,291	755.584	0.000
mexican	1	372.773	1950	2019	298	2,126	245.556	0.000
	2	0.000	1990	1999	1	1	34.227	0.000
	3	0.050	1970	2019	4	7	32.678	0.000
	4	257.338	1960	2019	35	199	24.899	0.000
german	1	210.945	1960	2019	605	5,574	542.592	0.000
	2	0.000	2010	2019	1	1	23.176	0.000
	3	0.889	1980	2009	2	2	19.971	0.000
african+ black+negro	1	383.557	2000	2019	362	7,745	394.437	0.000
	2	150.886	2010	2019	14	407	36.544	0.000
spanish	1	264.701	1960	2019	194	1,523	157.313	0.000
	2	20.897	2010	2019	12	61	97.998	0.000
	3	139.226	1960	2019	22	135	29.830	0.000
	4	27.546	1960	1979	12	77	21.670	0.000
	5	0.000	2010	2019	1	1	18.240	0.001

To conclude this part of the analysis, I compared the location of markers with population distribution at the county level, like other researchers have done (Otterstrom and Davis 2016; Bright et al. 2021). To do so, I mapped 2020 census population data and superimposed the clusters just described for comparison (United Census Bureau 2022); for population of German ancestry, I used the ethnic table from the *American Community Survey* (2015). The population was normalized by county total as in Figure 9 to allow for meaningful comparison. Overall, the distribution of the Hispanic, German, and Black population tends to match clusters of markers (Figure 11): historically and even today, Hispanics are especially numerous in South Texas and along the border, seeking cultural homogeneity and physical proximity to Mexico (Jordan 1986). Early German colonizers

settled in the central part of the state, and they are still there. The first German migrants urged their relatives and friends to join them—in what came to be known as the “American letters”—sparking a considerable inflow migration that created the so-called “German Belt” (Biesele 1987; Kownslar 2004). As concerns Blacks, they were typically brought to Texas from the eastern U.S. cities and ports by slave traders and owners (Burrough et al. 2021). After emancipation, freed Blacks remained in the eastern part of the state, often moving to its cities for job opportunities and a chance at creating strong communities (Dulaney 2020). The oil boom, as already noted, also attracted African Americans to the northwest part of the state. Also notable is the lack of overlap, except in a few areas, between Hispanics and Blacks, with the two groups historically divided along a line that runs from Texarkana to San Antonio (Jordan 1986), a pattern that continues today.

Finally, the clusters for “indian” are the only ones that do not overlap with the current population distribution, the tragic result of the expulsion of this population from much of the state and its scattering across the state in small numbers, including in some large cities. What is striking is that while the other ethnic groups have remained in the same places where they are commemorated, for Indians the markers tell a story of defeat. This is of course the dark side of the myth of the frontier that has captured so much of the state’s imagination.

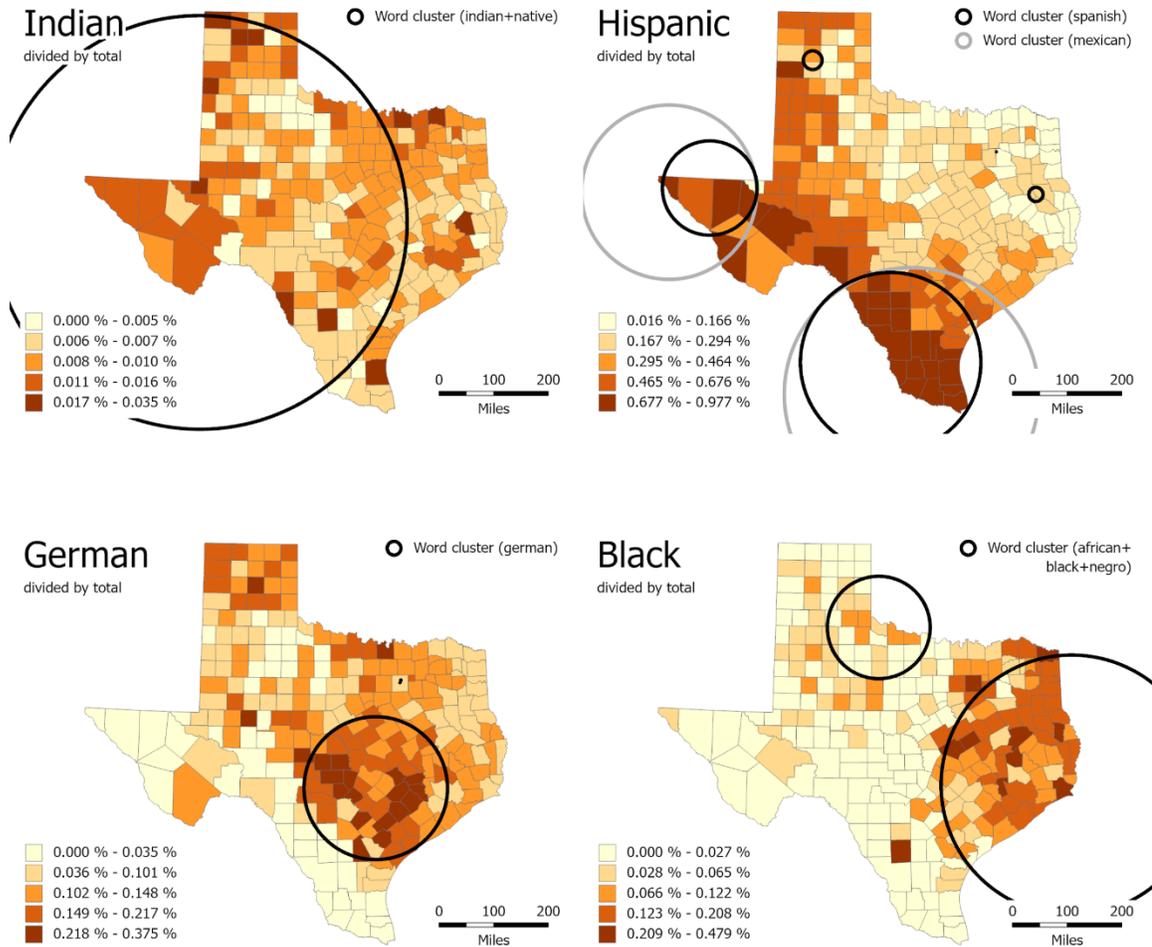


Figure 11. Normalized population by county. Source: United States Decennial Census 2020.

### Discourse analysis: qualitative semantics

So far, I have addressed the “where” and “when” of commemoration in Texas. In this section, I address the “how” and “why” by looking at collocation, a feature of corpus linguistics analysis often used to address such questions (McEnery and Hardie 2012).

Collocated pairs of words can follow each other (e.g., “African American”) or be separated by one word or more (“band” of “Indians,” “Mexican” dictator Santa “Anna”).

WMatrix generates collocation lists by both single words or by semantic tags. The

collocate lower case and upper case initials are listed separately (e.g., “School” and “school” as collocates of “African”) as are plural and singular forms (e.g., “German immigrant” vs. “German immigrants”). Close reading after processing in WMatrix is a necessary step to remove irrelevant (to this study) collocations—such as “native stone”—from the analysis. WMatrix sorts results by the log-likelihood (LL) value, which measures the probability of a meaningful association. A collocation with high LL means that words pairing in the text is intentional rather than occurring by chance. All collocates in Table 8 are statistically significant—LL values above 15.13 are equivalent to a p-value of less than 0.0001 (Collins 2015).

Tables 8abc allow us to inquire about how different groups are characterized in the historical markers. Overall, all five groups are associated with positive, negative, and/or neutral narratives (Conzen et al. 2012). As concerns the term “indian” (Table 8), markers overwhelmingly commemorate violent encounters between white colonists and Native inhabitants. Pairs such as “Indian raid,” “Indian fighter,” “hostile Indians,” “Indian attacks,” and “savage Indians” conceal the colonists encroachment of Native territories and blatantly blame violence on one side only (Loewen 2019). All other pairs in the table lists the names of Indian tribes (e.g., “Comanche Indians”), with no judgment. The collocates of “mexican” (Table 8) are a mix of military and cadastral terms, testifying to the fact that early interactions between colonists and this group had concerned Mexico’s land grant policy and the conflicts of interest that followed. In later periods, markers also affirm the role Mexican “descents” played in Texas history, from civil rights to everyday culture, in a vigorous affirmation of identity. The themes of commemoration for “german” stand in strong contrast to those for “indian,” emphasizing

cultural origin through immigration, language, family, and heritage. The only negative term, “German prisoners,” refer to soldiers interned in camps in Texas during the two World Wars. For the most part, “African American(s)” are commemorated in markers related to education, community, and religion, with only one pairing—“enslaved African”—testifying to slavery (Table 8c). Finally, for “spanish” the collocates refer, as already noted, to early exploratory expeditions as well as architectural terms, such as “Colonial,” “style,” and “Revival” (Table 8c). “Spanish” is also paired with “mission(s),” a religious as well as political entity which was the site of religious conversion and practice, as well as the social, administrative, and economic keystone of colonial Spain (Fehrenbach 2000). It is worth noting that while both Spain and Mexico ruled what is today Texas, negative connotations are associated more often with Mexico rather than Spain, in spite of the arguably bloodier and more genocidal conduct of the European colonial power. This is the result of the outsized role the Texas Revolution has on the collective memory of Texans (Burrough et al. 2021).

Table 8a. Word collocate list

Rank	Total			indian+native		
	Collocate (left)	Collocate (right)	LL	Collocate (left)	Collocate (right)	LL
1	Recorded	Landmark	43085.87	Indian	raids	1012.54
2	Historic	Landmark	40395.72	Indian	Territory	985.31
3	Recorded	Historic	37929.49	Native	Americans	884.13
4	Marker	property	31010.42	against	Indians	779.85
5	Marker	State	30495.11	Indian	fighter	546.35
6	Texas	Landmark	27332.60	hostile	Indians	504.36
7	State	Texas	26848.73	Indian	attacks	489.53
8	Civil	War	25712.21	Comanche	Indians	463.23
9	Recorded	Texas	24760.51	Indian	tribes	437.04
10	property	State	24519.56	killed	Indians	411.58
11	Baptist	Church	22644.50	Native	American	362.67
12	Texas	Historic	22440.06	Indian	raid	295.43
13	property	Texas	15436.37	Karankawa	Indians	295.26
14	Methodist	Church	15292.75	protection	Indians	286.03
15	World	War	14995.94	Native	tribes	193.43
16	San	Antonio	14161.29	Indian	agent	182.59
17	post	office	14135.31	against	Indian	181.54
18	burial	ground	13590.25	Kiowa	Indians	178.57
19	World	II	13103.92	Indian	Creek	176.06
20	First	Church	11319.48	Caddo	Indians	172.91
21	Erected	State	10781.90	savage	Indians	172.48
22	United	States	10741.01	band	Indians	164.61
23	War	II	10217.38	Indian	territory	157.91
24	African	American	8834.95	Indian	Wars	153.44
25	county	seat	8401.19	Indian	trail	152.83
26	Fort	Worth	7861.01	Indian	attack	152.08
27	San	Jacinto	7648.82	attacked	Indians	142.84
28	Rio	Grande	7540.63	Christianize	Indians	130.48
29	Erected	Texas	7499.22	Indians	reservations	127.16
30	Corpus	Christi	7046.14	Apache	Indians	126.77

Table 8b. Word collocate list (continued)

Rank	mexican			German		
	Collocate (left)	Collocate (right)	LL	Collocate (left)	Collocate (right)	LL
1	Mexican	War	1155.28	German	language	422.83
2	Mexican	government	516.85	German	settlers	406.48
3	Mexican	American	453.78	conducted	German	280.48
4	Mexican	grant	373.98	German	Lutheran	268.22
5	Mexican	Revolution	296.46	German	Emigration	244.29
6	Mexican	army	280.13	German	heritage	231.54
7	Mexican	troops	228.06	German	prisoners	193.09
8	Mexican	Army	222.25	German	families	183.32
9	Mexican	land	173.72	German	descent	177.42
10	Mexican	descent	164.41	German	English	174.07
11	Mexican	Americans	164.31	services	German	172.91
12	Mexican	border	154.36	German	native	165.15
13	advancing	Mexican	145.84	German	settled	163.24
14	against	Mexican	119.47	German	area	152.36
15	Mexican	Anna	116.15	Lutheran	German	149.12
16	Mexican	war	115.64	German	Evangelical	147.53
17	Mexican	Santa	109.94	German	Czech	130.08
18	received	Mexican	108.94	German	inscriptions	110.58
19	Mexican	rule	105.01	Church	German	107.49
20	veteran	Mexican	103.95	German	settlement	97.86
21	Mexican	forces	97.74	Czech	German	93.91
22	Mexican	General	89.05	predominantly	German	93.76
23	Mexican	Coahuila	85.25	German	Church	91.40
24	Mexican	immigrants	81.99	German	until	89.36
25	Mexican	Railway	70.33	Many	German	87.13
26	Mexican	traders	68.82	German	immigration	86.73
27	Mexican	Railroad	66.29	House	German	84.31
28	escape	Mexican	64.58	German	Catholic	83.99
29	Fought	Mexican	64.06	tombstones	German	83.80
30	Mexican	invasion	62.17	reminder	German	80.04

Table 8c. Word collocate list (continued)

Rank	african+black+negro			spanish		
	Collocate (left)	Collocate (right)	LL	Collocate (left)	Collocate (right)	LL
1	African	American	8834.95	Spanish	explorers	569.97
2	African	Americans	2936.26	Spanish	Colonial	493.17
3	African	students	664.64	Spanish	style	290.02
4	African	community	528.50	Spanish	Revival	270.09
5	first	African	367.45	Spanish	rule	191.96
6	African	Episcopal	365.26	Spanish	colonial	182.85
7	black	community	260.80	Spanish	mission	181.66
8	school	African	258.02	Spanish	explorer	165.53
9	African	Methodist	229.83	Spanish	missions	159.70
10	School	African	184.68	Spanish	grant	155.41
11	first	black	159.66	Spanish	word	133.90
12	education	African	136.27	Old	Spanish	132.26
13	African	children	132.10	Spanish	Trail	122.61
14	African	schools	127.23	French	Spanish	120.75
15	black	students	122.93	Spanish	revival	106.79
16	African	Church	119.38	Spanish	de	102.00
17	black	children	114.46	Spanish	American	99.56
18	white	black	112.72	Spanish	authorities	99.31
19	Houston's	African	108.31	Spanish	expeditions	95.82
20	enslaved	African	106.65	Spanish	territory	73.88
21	oldest	African	105.50	Spanish	land	73.37
22	African	citizens	105.50	Spanish	missionaries	69.95
23	area's	African	103.69	Spanish	architecture	67.06
24	serve	African	99.36	Spanish	Texas	65.06
25	historically	African	98.73	Spanish	governor	60.40
26	African	school	96.49	Spanish	influences	59.40
27	AFRICAN	AMERICANS	93.99	Spanish	settlements	58.46
28	AFRICAN	AMERICAN	87.90	Spanish	names	57.25
29	African	residents	86.36	Spanish	government	55.03
30	Negro	Hospital	83.75	Spanish	soldiers	52.37

In the last part of the analysis, I revisited collocation, shifting from lexical to semantical analysis. Automatic tagging by WMatrix may lead to errors that need to be manually corrected, as in “Indian reservation,” which is misclassified as an expression of doubt, and thus tagged as A7- in Table 9. I kept this and similar mistakes in the table as they are statistically significant, but ignored the negative connotation.

The semantic tags in Table 9 generally reaffirm the findings from the collocate analysis found at the word level. Both “indian” and “mexican” are intensively marked by a negative or at least violent narrative, most evident in the prominence of tags G3, E3-, and their subsets. See for example G3c (infantry, cavalry, garrison) as a subset of G3 (raid, war, army) with positive signs occurring only in the sense of “belonging to a group” (tag S5+). Several neutral tags are collocates of these two groups, as in “native” Z2/S2mf (american), “indian” I2.1/S2mf (agent), and “mexican” I1 (grant). W3/M4 also attest to the Native Americans’ perceived deep relationship with the natural environment. Finally, some hydrographic features in Texas are still named after their native name: Caddo Lake, Bowles Creek, and Navasota River, to name a few.

The frequency of M-tags marks the relation between “german” and migration, and in this narrative, Germans also strive to improve their socioeconomic status in the new continent (T2+). Tales of “german” heritage (A9+/S1.1.1), as well as language (Q3) and people and religion (S9/S2mf), also occur. The term “African” gained popularity in the 1990s, primarily in association with “american” (Z2) and “americans” (Z2/S2mf). The term “black” has a strong association with education (P1/S2mf) and children (S2mf/T3-). “Spanish” collocates with tags M7/S7.1 (colonial), which refers to both a political system and an artistic style. Immigration (M1) and American (Z2) are also significantly paired

with this term, but Texas history adds a more distinctive flavor, with expedition (M1) and explorers (M1/S2mf) added to the mix. Another unique characteristic of “spanish” points at both the usefulness and limitations of semantic tagging in WMatrix, for while the tool correctly classified “style” as Tag X4.2 (conceptual object), “mission” is misinterpreted as X7+ (wanted), as is “revival” (X5.2+, for energetic). Coming in at tenth place, “spanish” is associated with language because many natural features, municipalities, churches, streets, and social organizations in Texas have Spanish names. The name Texas itself derives from the Spanish transcription of the Caddoan Indian term *Teychas*, meaning “allies” or “friends” (Fehrenbach 2000).

Table 9. Semantic collocate list

Rank	Word	LL	Tag	Description of tag	Collocate (sample)
1	indian	757.28	G3	Warfare, defense, and the army; weapons	raid, war, army
2	indian	695.58	E3- / S2mf	Violent, angry / People	fighter
3	native	570.92	Z2 / S2mf	Geographical names / People	americans
4	indian	447.15	E3-	Violent, angry	fight, attack
5	indian	445.66	M7	Places	territory, village
6	indian	234.64	A7-	Unlikely	reservation
7	indian	197.50	S5+	Belonging to a group	tribe
8	indian	122.28	I2.1 / S2mf	Business: generally / People	agent
9	indian	121.21	W3 / M4	Geographical terms / Sailing, swimming, etc.	creek, spring, lake
10	indian	116.89	X7+ / Q2.2	Wanted / Speech acts	campaign
1	mexican	1344.39	G3	Warfare, defense, and the army; weapons	war, army, troops
2	mexican	585.38	G3c	Warfare, defense, and the army; weapons	infantry, cavalry, garrison
3	mexican	335.36	G1.1c	Government	government
4	mexican	243.48	G1.2	Politics	revolution, republic
5	mexican	233.46	I1	Money generally	grant

6	mexican	211.90	G3 / S5+	Warfare, defense, and the army / Belonging to a group	company, regiment, troop
7	mexican	137.15	Z2	Geographical names	american
8	mexican	131.61	W3	Geographical terms	land
9	mexican	126.29	M1	Moving, coming, and going	advancing, arrived
10	mexican	115.70	M7 / G1.1	Places / Government	border, municipality
1	german	2755.89	M1 / M7 / S2mf	Moving, coming, and going / Places / People	immigrant, emigrant
2	german	333.13	M7 / S2mf	Places / People	settler
3	german	254.08	A9+ / S1.1.1	Getting and possession / Social actions, states, and processes	heritage
4	german	242.81	T2+	Time: beginning	founded, formed, established
5	german	218.05	Q3	Language, speech, and grammar	language
6	german	215.98	S9 / S2mf	Religion and the supernatural / People	lutheran, protestant, pastor
7	german	199.84	M7	Places	town, village
8	german	169.01	M1 / I2.1c	Moving, coming, and going / Business: generally	emigration, company
9	german	156.13	M1 / M7	Moving, coming, and going / Places	immigrant, emigrant
10	german	131.69	S4	Kin	married, families
1	african	3409.95	Z2	Geographical names	american
2	african	2136.47	Z2 / S2mf	Geographical names / People	americans
3	african	637.54	P1 / S2mf	Education in general / People	teacher, student, professor
4	african	503.42	S5+c	Belonging to a group	community
5	african	202.04	P1 / H1c	Education in general / Architecture, houses, and buildings	school
6	african	197.22	S9 / S2mf	Religion and the supernatural / People	lutheran, protestant, pastor
7	african	197.15	S9	Religion and the supernatural	episcopal, methodist
8	african	130.31	S2mf / T3-	People / Time: New and young	children
9	black	130.10	P1 / S2mf	Education in general / People	teacher, student, professor
10	black	97.01	S2mf / T3-	People / Time: New and young	children
1	spanish	683.94	M7 / S7.1	Places / Power, organizing	colonial
2	spanish	615.05	M1 / S2mf	Moving, coming, and going / People	explorer
3	spanish	283.98	X7+	Wanted	mission

4	spanish	266.67	X5.2+	Interested, excited, energetic	revival
5	spanish	159.32	X4.2	Mental object: conceptual object	style
6	spanish	119.01	Z2	Geographical names	american
7	spanish	112.94	I1	Money generally	grant
8	spanish	95.82	M1	Moving, coming, and going	expedition
9	spanish	89.24	W3	Geographical terms	land
10	spanish	84.59	Q3	Language, speech, and grammar	word

Table 10 looks at the semantic tagging of the five racial/ethnic words by decade to examine how their characterization changed over time. This part of the analysis is similar to what I did with words in Table 6. For simplicity, the table only lists the most likely collocate per decade rather than listing the top ten as in Table 9. I also separated “native,” “black,” and “negro” from “indian” and “african” in order to trace when the transition in their use occurred.

The most striking feature of this part of the analysis is that the topics of commemoration change from narratives of war and violent colonization to narratives of peace, development, and community. Each racial/ethnic group presents a similar trajectory with some peculiarities. For example, while “indian” has come to be associated with neutral collocates that refer to areas of settlement, movement, and villages (M7), the term “mexican” has maintained its linguistic association with war for a long time and even its association with politics (G1.2) is principally the result of its collocation with the term “revolution.” This attests to the fact that as late as the 2010s, “mexican” continues to be associated with the Texas Revolution (Burrough et al. 2021), an event that has an objectively outsized weight in the collective memory of Texas. “German,” too, has a strong relationship with immigration topics (M1/M7/S2mf), beginning in 1936 and

continuing to this day and without interruption.

In the 1970s, “African” and “black” started being collocated with religion (S9/S2mf) and community (S5+/O4.3c). The term “black” follows a pattern I already encountered in Table 6: decrease in use in the 1990s—immediately after “american” started to replace it—and recovery in the last three decades. “Negro,” on the other hand, formed linguistic pair with “servant” and “slave” (S7.1-/S2mf) in the 1960s, and then disappeared, to be revived in the 2000s, in conjunction with the historical name of organizations and buildings exclusively associated with African Americans, such as the Houston Negro Chamber of Commerce (I2.1/S5+c) and the Cora Anderson Negro Hospital (B3/H1c). Finally, the term “spanish” had no particular connotation throughout the study period, being associated with exploration (M7/S7.1) and colonial architecture (M7/S7.1). Mission also tops the 1970s list, although with the already mentioned misclassification of tag Wanted (X7+).

Table 10. Semantic collocate list by decade

Word	Decade	LL	Tag with highest LL	Description of tag
indian	1930s	205.50	E3- / S2mf	Violent, angry / People
	1960s	250.18	E3- / S2mf	Violent, angry / People
	1970s	171.38	G3	Warfare, defense, and the army; weapons
	1980s	109.47	E3-	Violent, angry
	1990s	56.07	G3	Warfare, defense, and the army; weapons
	2000s	80.04	M7	Places
	2010s	51.79	M7	Places
native	1930s	(none)	(none)	(none)
	1960s	(none)	(none)	(none)
	1970s	(none)	(none)	(none)
	1980s	476.59	Z2	Geographical names

	1990s	163.09	Z2	Geographical names
	2000s	186.37	Z2 / S2mf	Geographical names / People
	2010s	314.27	Z2 / S2mf	Geographical names / People
mexican	1930s	144.08	G3	Warfare, defense, and the army; weapons
	1960s	438.88	G3	Warfare, defense, and the army; weapons
	1970s	311.39	G3	Warfare, defense, and the army; weapons
	1980s	266.41	G3	Warfare, defense, and the army; weapons
	1990s	117.39	G3c	Warfare, defense, and the army; weapons
	2000s	106.94	G3	Warfare, defense, and the army; weapons
	2010s	109.03	G1.2	Politics
german	1930s	32.73	M1 / M7 / S2mf	Moving, coming, and going / Places / People
	1960s	101.96	M1 / M7 / S2mf	Moving, coming, and going / Places / People
	1970s	234.32	M1 / M7 / S2mf	Moving, coming, and going / Places / People
	1980s	700.23	M1 / M7 / S2mf	Moving, coming, and going / Places / People
	1990s	557.48	M1 / M7 / S2mf	Moving, coming, and going / Places / People
	2000s	526.97	M1 / M7 / S2mf	Moving, coming, and going / Places / People
	2010s	592.81	M1 / M7 / S2mf	Moving, coming, and going / Places / People
african	1930s	(none)	(none)	(none)
	1960s	(none)	(none)	(none)
	1970s	25.30	S9 / S2mf	Religion and the supernatural / People
	1980s	184.65	S9 / S2mf	Religion and the supernatural / People
	1990s	513.06	Z2	Geographical names
	2000s	1230.60	Z2	Geographical names
	2010s	1594.93	Z2	Geographical names
black	1930s	(none)	(none)	(none)
	1960s	(none)	(none)	(none)
	1970s	64.08	S5+ / O4.3c	Belonging to a group / Color and color patterns
	1980s	256.89	S5+ / O4.3c	Belonging to a group / Color and color patterns
	1990s	23.41	P1 / S2mf	Education in general / People
	2000s	126.42	S5+ / O4.3c	Belonging to a group / Color and color patterns
	2010s	205.31	S5+ / O4.3c	Belonging to a group / Color and color patterns
negro	1930s	(none)	(none)	(none)
	1960s	63.76	S7.1- / S2mf	No power / People
	1970s	(none)	(none)	(none)

	1980s	(none)	(none)	(none)
	1990s	(none)	(none)	(none)
	2000s	34.13	I2.1 / S5+c	Business: generally / Belonging to a group
	2010s	46.26	B3 / H1c	Medicines and medical treatment / Architecture, houses, and buildings
spanish	1930s	64.36	M1 / S2mf	Moving, coming, and going / People
	1960s	167.91	M1 / S2mf	Moving, coming, and going / People
	1970s	81.97	X7+	Wanted
	1980s	206.37	M7 / S7.1	Places / Power, organizing
	1990s	281.67	M7 / S7.1	Places / Power, organizing
	2000s	123.21	M7 / S7.1	Places / Power, organizing
	2010s	67.06	M1 / S2mf	Moving, coming, and going / People

## Discussions

All commemoration practices are the expression of social forces and as such vary over time and space (Lowenthal 1975; Foote 2003; Alderman 2012). This is not only because not everything that happens can be commemorated, but most importantly because commemoration serves the present and spaces and places are themselves a narrative medium (Azaryahu and Foote 2008). As a result, the narrative that emerges from the act of commemoration is both spatially and temporally always celebratory of one or more themes over others. This dynamic is also clearly present in the Texas Official Historical Markers program, as exemplified to its hostility towards “indian” and “mexican.” Although toned down more recently, a long history of stigmatization has had a long-lasting effect on the overall sentiment associated with these two groups, and this can and has led to racism and discrimination. Early Texas markers express hostility towards Native Americans and Mexicans by highlighting conflicts with the white

majority, while at the same time not memorializing—i.e., actively concealing—anything that could be perceived as negative about the behavior of the hegemonic groups (Loewen 2019; Swanson 2020; Burrough et al. 2021).

In this study, I have chosen to focus on five racial/ethnic terms with high frequency of commemoration, but other groups are also remembered in the Texas markers, usually only locally and for only one or few decades: for example, “french” (mentioned 312 times), “english” (269), “czech” (267), “korean” (144), “irish” (139), “swedish” (138), “italian” (101), and “polish+pole” (99). Low frequency does not correspond to insignificant contribution, of course. Interestingly, identity groups with few markers are primarily associated with neutral themes like immigration and culture, similarly to the “german” case. This lack of conflictuality—perhaps because some of the above groups are members of the hegemonic group themselves—is the likely reason for the neutral feelings. Moments of self-assertions, such as riots, strikes, mutinies, or civil rights events are also rare in the narratives for these groups, unlike for “african.” These markers tell a story of migration and settlement, civic engagement, and religion.

The case of “indian” and “mexican” in the 1930s and 1960s exemplify the most unfortunate case of derogatory semantics. As white colonists waged wars aimed at expelling native tribes from Texas, 1936 markers in particular offer a one-sided narrative of the story, typically recalling the tragic histories of white women or children murdered during raids and often exaggerating the brutality of Indian warriors (Sowell 1900). The collocates “hostile Indians” and “savage Indians” build a strong narrative framework that emphasizes emotional hatred and oversimplify the social, economic, and racial factors behind this confrontation. When natives are murdered—either by deliberate retaliation or

by mistake—the atrocities committed by white colonists are often ignored and sometimes even transformed into heroic acts of defense of the frontier. This is reflected in the frequent reference to battles. Many recent scholars have remarked on the relation between war memorials and nationalism in Texas and in the United States (Gillis 1994; Foote 2003; Dwyer and Alderman 2008; Webb 2008; Brown 2019; Burrough et al. 2021) and Texas markers have a long history of memorializing fallen soldiers, officers, and veterans of the Texas Revolution, the Civil War, the Spanish-American War of 1898, the two World Wars (1914–1918; 1939–1945), and the Korean War (1950–1953). This commemoration serves to focus the public’s attention on patriotic acts, events, and people, while discouraging and stigmatizing dissenters “others,” “non-citizens,” and “enemies.”

Geographers have adopted the intertextuality concept that all texts write and rewrite each other in the analysis, and so have I. Because commemoration is never static, who and how is the object of it changes over time, as the social context changes. The Texas Revolution is an interesting example of these dynamics. In 1936, for the centennial anniversary, the marker’s narrative adheres to the state-sanctioned viewpoint that sees “indian” and “mexican” as the Republic founders’ counterforce. This narrative is largely the fruit of influential historians—George Pierce Garrison (1903), Eugene C. Barker (1928), Walter Prescott Webb (2008; first edition published in 1935), and T. R. Fehrenbach (2000; first edition 1968)—who justified the Anglo Americans revolt against the Mexican government and promoted the myth of the romance of the frontier and a narrative of individualism steeped in the American tradition. More recently, and galvanized by the civil rights movement, Hispanics, African Americans, Native

Americans, and other minorities have started to counter these myths, either by highlighting their groups' contributions to Texas history (Behnken 2011; Buenger et al. 2011; Boswell 2018; Roland 2018), or by flat out accusing their Texan ancestors of committing racist crimes (Marten 1990; Bills 2014). Other scholars have emphasized the role of slavery and the cotton trade as motivations for the revolt (Campbell 1989; Torget 2015), or have highlighted the atrocities committed by the Anglo forces under the guise of self-defense (Swanson 2020). This trajectory is reflected, at least partially, in the Texas historical markers narrative, with a more positive or at least neutral characterization of minority groups in recent decades, testified by a thematic transition from war to peace and by the opening of the program to suggestions and proposals from the public.

These more recent trends, which have also been observed at the national scale, counterbalance the one-sided narratives of the past, although academic researchers have called for more proactive policies and coordinated efforts in this sense (Alderman 2012; Loewen 2019). Changes in the narrative of Texas commemoration are a prime example of poststructuralist intertextuality, in which a new text challenges outdated modes of interpretation (Smith 2017). On this point, in 2006, the THC launched the “Undertold Markers” program to assess which topics and which stories had been left behind, in recognition of the fact that the centennial markers of 1936 had placed some groups—African Americans, Mexican Americans, Native Americans, and women—in an “unflattering or unfortunate context” (Brinkman 2010). As a result, the THC has erected more than one hundred markers in the ensuing years, often challenging and offering a counterpoint to earlier narratives.

One remarkable aspect of these new sensibility is to be found in THC’s decision

not to change the text of old markers, even when they are known to be inaccurate or problematic. Instead, new markers are placed to counterbalance the narrative of old ones, thereby entering the two narratives in a conversation, in an example of intertextuality by the state. This is an unusual decision when it comes to commemoration, because usually new perspectives remove the legacy of old ones to promote new values (Azaryahu 1990; Yeoh 1996; Foote et al. 2000; Levinson 2018). Interestingly, the THC occasionally edits the text of some markers, but those erected in 1936 are treated as special, not to be touched. As stated in the *Texas Centennial Marker Policies* (THC 2009):

... The inscriptions for some 1936 markers may be inaccurate, incomplete or confusing. However, because these inscriptions are part of the state's 1936 historic preservation effort and have acquired historical significance in their own right, the THC will not revise or alter 1936 inscriptions. ...

Clearly, THC fully understands that the 1936 markers are the product of a certain historical period, but it has decided that they are as worth of recognition as today's perspectives. This echoes T. R. Fehrenbach's sentiment, as evident in the second edition of his magnum opus, *Lone Star* (2000):

As a construct, history is too often revised to match contemporary views. It has been said that each generation must rewrite history in order to understand it. The opposite is true. Moderns revise history to make it palatable, not to understand it. Those who edit "history" to popular taste each decade will never understand the past—neither the horrors nor glories of which the human race is equally capable—and for that reason, they will fail to understand themselves. The 1968 *Lone Star* was in some ways highly original. ... I have seen no reason to change this, which makes the current edition an update, not a revision, from the ephemeral perspectives of the nineties.

Setting aside the polemic tone toward the revisionist historians of the 1990s, the need for preserving previous historical perspectives makes sense. As noted by Foote (2003), the obliteration of all shameful legacies may encourage vandalism and cultural rupture, and censorship may prevent fruitful debate and open conversations about the future. Loewen (2019, 33) echoes the THC and Fehrenbach's call for historical conservatism when he argues that every historical site tells two stories: that of the event that is commemorated and that of the time when it was decided to commemorate it. Loewen adds that a "third era" is when the public reads the text of the marker. It is relatively easy to eradicate past perspectives, as is commonly done in the United States (Foote 2003), but in this case the THC decided not to deny the past. Whether the agency would have done that had the 1936 markers commemorated anything other than the heroism of the colonists, the taming of the natives, and a war narrative of a victorious war, remains of course to be seen.

In conclusion, the Texan narratives of the future must seek reconciliation with those in the past. Criticizing of and coming to terms with an often shameful past should always be encouraged, but this should not turn into total eradication, as this often also conveniently obliterate the crimes of the perpetrators: there is a massive difference between criticism and denial. Intertextuality is conversation and not the erasure of previous narratives, no matter how shameful or tragic they may be. Pretending that Texas has always been a land of friendly people and community—the main theme of commemoration for the last fifty years—resembles totalitarian propaganda and perpetrates another type of violence to the history and geography of Texas. Those who propose to erase past narratives too often forget that future generations may do the same:

there is no such thing as an everlasting narrative in commemoration, for no arrogance of the present can defy change. To quote Lowenthal (2015, 602), “the antidote to presentist misjudgment is historical understanding.” With the bicentennial of the Texas Revolution (2036) in sight, I hope a genuine “understanding” of race and ethnicity starts from acknowledging the uncomfortable past as it is.

## **IV. A COMPARATIVE ANALYSIS OF HISTORICAL MARKER PROGRAMS: TEXAS, GERMANY, AND SEOUL**

### **Introduction**

Places of commemoration—statues, memorials, plazas, etc.—are meant to impress and grab the viewer’s attention with their size or prominent location. The latter is carefully chosen so that locals and visitors are repetitively exposed to the message embodied in the object of commemoration (Azaryahu 1990; 1996). Being centrally located, physically elevated, or in the high traffic area of a city underscore the importance and meaning of a site: the equestrian statue of a general overlooking a boulevard on top of a pillar is a prime example (Bodnar 1992). Across time and place, societies have used megaliths as a mean of affirmation: think of the pyramids, Stonehenge, dolmen, and moai, to name a few. Nineteenth century’s European rulers and its artists stand out as specialists in monumentalizing the national past in order to legitimize the present regime to envision the future (Huysen 2003), but the art of commemoration also proliferated in the Communist, post-Communist, and postcolonial regimes of the twentieth century, as new regimes strived to vanquish the old ones, renaming streets, replacing statues, and building memorials (Hobsbawm and Ranger 1983; Yeoh 1996; Foote et al. 2000; Choi 2017; Levinson 2018). Out of often painful experiences, new regimes have often adopted and mastered the European style of commemoration, which may have been the invention of an enemy but have also historically guaranteed success.

Lowenthal (1975; 1994) was the first scholar to call geographers' attention to the materiality of public memories. He notably referred to the therapeutic aspect of the "tangible past," which provides human society with a sense of continuity and legitimacy when it suffers from cultural rupture, uprootedness, and nostalgia. By extension, he maintained that the meaning of the past changes depending on the needs of the present, so that as some facts, events, and people fall into oblivion, others that meet today's needs are rescued from obscurity to see the light. When Lowenthal proposed the first geographic framework of commemoration in the mid-1970s, cultural geographers in the United States were heavily influenced by Carl Sauer, who together with his followers at the Berkeley School was primarily interested in material artifacts like log cabins, fences, and rural settings (Cosgrove and Jackson 1987): Sauer's cultural geography engaged in observing visible changes caused by cultural agents in a natural environment. This framework was naturalistic and in the 1970s some scholars attempted to reorient the study of commemoration toward the humanities (Jackson 1989). Lowenthal was one of the "humanistic geographers" who sought to study how human beings think and feel about the landscape, although he continued to concern himself with the material aspect, as do I.

The most influential and long-lasting aspect of Lowenthal's theoretical framework is the selective nature of memorial activities. He argued that humans tend to remember memories that cast positive lights while consciously forgetting traumatic ones (Lowenthal 1975) and it is for this reason that historical authenticity is often ignored, as long as tangible artifacts afford a degree of therapeutic connectivity between the people and their glorious past. Patriotism and nationalism are prime examples of emphasizing

heroic episodes regardless of historical authenticity (Johnson 1995; Loewen 2019). Lowenthal's argument on selective memories inspired Foote (1990; 2003) to examine how Americans deal with violent and tragic events through material relics. Foote proposed four categories: sanctification, designation, rectification, and obliteration of the past. The deceased are sanctified to overcome their loss, but when sadness or shame become intolerable, efforts are made to obliterate all the evidence of unpleasant events. In between the two extremes, designation marks an object as noteworthy in a more neutral way, while rectification takes place when tragic and violent memories are washed away and reintegrated into everyday life. This exoneration process works by minimizing shameful events as rare accidents and the perpetrators as social outsiders or historical aberrations, pretending that their descendants have nothing to do with them. Along the continuum of honorable-to-shameful memories, Foote argued, human beings deliberately select past things to serve present needs. In the historiographical terms of Loewen (2019), this decision-making distinguished "what happened" (the past) from "what we say about it" (history).

Commemorative studies in geography have also been influenced by the "new" cultural geographers of the 1980s, who view landscape as a text to be read as a social document (Cosgrove and Jackson 1987) under the influence of post-structuralist philosophers, linguists, and semioticians including Roland Barthes, Jacques Derrida, Michel Foucault, Claude Lévi-Strauss, and Ferdinand de Saussure (Duncan and Duncan 1988). Rather than describing physical and tangible artifacts of the landscape, these authors opted to interpret their meaning-production system working with symbolic codes. The "new" cultural geographers borrowed one of their main tenets—intertextuality,

which is concerned with the many-to-many interactions occurring among various texts—from philosophy. The key point here is that a text is produced and consumed and that all texts are endlessly in progress and unstable, so that one text can be understood differently depending on the author's and reader's life experiences, situation, and standpoint (Duncan and Duncan 1988). Even when the author tries to fix a text's meaning, readers can interpret it their way: alternative readings may be unintended episodes of miscommunication but can also be purposeful acts of opposition. To explain this fluid unrest, some geographers have subscribed to the poststructuralist idea that knowledge is always subject to contestation rather than passive understanding (Jackson 1989). The contestants, in this sense, reject any common sense that stabilizes the structures of society. The “new” cultural geographers likewise oriented their focus on politics and economy to try and subvert the established meaning of texts (Cosgrove and Jackson 1987).

Inspired by this rationale, geographers have started to re-examine commemorative facilities within Lowenthal's framework of selective memories. For example, Johnson (1995) explored the significance of statues and monuments as they offered material bases for nationalist imaginings, while Schein (1997) developed a conceptual framework for the American landscape using Ashland Park, Kentucky, as an example. Schein argued that cultural landscape is “discourse materialized,” following Duncan's (1990, 12) definition of discourse as a set of “common-sense assumptions.” Notably, Schein pointed out that the materialization process renders the landscape a “palimpsest” with abundant occasions for erasure, overwriting, and the co-existence of different scripts (Schein 1997, 662; Huyssen 2003). Along these lines, Foote et al. (2000) tracked the removal,

restoration, and relocation of Hungarian political monuments as the communist regime came to an end in 1989. Foote proposed a new term, “symbolic accretion,” using the San Jacinto battlefield in Texas as an example: in San Jacinto, battleships and memorials were added to a pre-existing commemoration site to emphasize Texan valor and American patriotism (Foote 2003, 231). In the context of critical race theory, Dwyer (2004) uses “symbolic accretion” to explain how accumulated monuments reinforce the state-sanctioned tutelage transferred to the civilians. However, it is also possible for the concept to work in the opposite direction. In Selma, Alabama, the intersection of Martin Luther King Street and Jeff Davis Avenue shows how a dissentient narrative can be accreted to counter the meaning of a place that has paid tribute to the hegemonic discourse (Ibid., 422; Dwyer and Alderman 2008).

Geographers’ interest in material commemoration has recently extended to historical markers, which are small plates of durable materials inscribed with texts commemorating historical sites, individuals, societies, events, architecture, and other elements of the past. The majority of these studies are influenced by critical race theory and have focused on textual inscriptions as a way to perpetuate racial violence and disparity. Thus, Alderman’s (2012) review of North Carolina highway markers has unearthed a “textual politics” whereby state-sanctioned monuments deliberately avoid the direct mentioning of lynchings, riots, and slave labor. Hanna and Hodder (2015) have implemented a mixed-method approach to the topics of slavery and emancipation by incorporating qualitative and quantitative measures in GIS. What they found in Fredericksburg, Virginia, was a preponderance of Confederate topics and an absolute lack of texts on the subjects of slavery and emancipation. In their study of California’s

historical markers, Otterstrom and Davis (2016) are less concerned with critical race theory, instead focusing on the spatiotemporal patterns of the markers. According to their observation, early markers in California commemorate the Gold Rush in mountain areas, where few people live today. Where the cultural and demographic landscape has drastically changed, markers serve as material witnesses of the past, securing that old memories are passed on intact. Lastly, Tennessee’s historical roadside markers are the subject of studies by Jones (1988) and Bright et al. (2021). Conducted thirty years apart, both studies reveal uneven patterns of commemoration, spatially and thematically. The 2021 follow-up study determined that markers’ distribution tend to mirror census demographics—which is the case also in Texas—but that whites and males are still overwhelmingly more memorialized than other groups.

Largely overlooked in the recent studies above is materiality—the matter, size, art style, and location of an artifact—a topic tackled by scholars in art history, sociology, linguistics, and law (Bodnar 1992; Gillis 1994; Huyssen 2003; Henneberg 2004; Levinson 2018; Brown 2019; Loewen 2019), but not by geographers. The scarce attention given to materiality is particularly evident when it comes to historical markers. Starting in the 1980s, “text” has been treated as an ideological metaphor—a social document to be read—rather than the physical inscriptions engraved on a plaque. For example, critical studies on commemorative toponyms emphasize how various stakeholders aim at building symbolic capital, which may increase dignity, prestige, reputation, and socioeconomic status through the rebranding of place (Azaryahu 1996; Yeoh 1996; Hoelscher and Alderman 2004; Rose-Redwood 2008; Light and Young 2015). Some researchers have observed that improved recognition in society entails

economic affluence and result in new infrastructure being built, but these scholars are usually more interested in the former (symbolic impetus to change the world) than the latter (material development). As a result, although Lowenthal had bequeathed a materialistic framework on commemoration, the “new” trend that emerged from the 1980s only sought to study the truth purportedly hidden behind the physical setting, neglecting the physical setting itself.

This study examines materiality not only in its physical characteristics (markers’ size, width, length, and material), but also in terms of location. This is because the spatiality of commemorative artifacts allows geographers to answer “where” the memory is (Foote and Azaryahu 2007, 127). Just as a person’s life has a beginning and an end, a marker also has a life path from erection to disappearance, and markers can be removed and restored by the authorities but also destroyed by protesters or by natural disasters. A marker can also be relocated or its text revised (Choi 2018). These dynamics are only partially traceable, as typically updated versions of markers datasets record new versions of inscriptions but do not preserve old ones, thus preventing the public from learning whether a certain marker has been relocated, edited, or only temporally removed. Often, ironically, that a marker even existed is noted only when it goes missing (Pappalardo 2017). This is because what people cherish is the history as told by the marker and not the history of the marker itself. Everyone cares for stories, few care about what happens to the storyteller, especially when the storyteller is an inanimate object.

In this chapter, which is written from the perspective of the storyteller, I compare the Texas Official Historical Markers with Stolpersteine in Europe and the Seoul Historical-Cultural Markers in South Korea. The three programs commemorate events

and people that took place in a U.S. state, internationally across a continent (starting from Germany), and in a city. The Texas Official Historical Markers (Figure 12) has been briefly reviewed in descriptive essays and oral history interviews (Christian 2005; Beeman and Utley 2008; Brinkman 2010) but has never been the subject of extensive academic scrutiny, as I do here. As of June 2022, there are more than sixteen thousand markers, a number that dwarfs similar programs in the United States: the second largest program—North Carolina—consists of only slightly over 1,600 markers.

A Stolperstein, which translates to “stumbling stone” in English, is a commemorative artifact that bear the names of Holocaust victims on a small brass surface. The name originated from the marker being planted on sidewalks, with people passing by on foot. This project differs from the Texas markers program because it is not sanctioned or operated by the state but was started in Germany by an artist named Gunter Demnig (1947–present). The program has since spread to other parts of Europe. As concerns the Korean example, my analysis stems from a pilot study I conducted on the historical markers of the Jongno District in Seoul, the capital of South Korea (Choi 2018). All three programs share some elements and differ in important ways. Taken together, they offer an international perspective on the geography of commemoration that is missing from U.S.-centered academic studies. I start with the Texas Official Historical Markers program.

Pink granite (1930s)



Gray granite (1930s)



Black aluminum (12" x 16", current)



Pink granite (late 1950s – early 1960s)



Black aluminum (18" x 28", current)



Black aluminum (27" x 42", current)



Pink granite (late 1950s – early 1960s)



Figure 12. Texas Official Historical Markers. Photographs of the author (February 2023).

### Texas historical markers: materiality as location

Materiality manifests itself throughout a marker's life path, and it is open to relocation, textual revision, and other changes. Among these rites of passage, and from a geographical perspective, relocation is the most significant. The THC dataset of 16,809

rows (after Preprocessing Stage I; Figure 1) reveal that 346 markers were relocated at some point in time, with eight markers moved twice. In most cases, the reason for relocation is not given, but in some lucky instances small supplementary plaques attached to the original marker shed light on the process. This way, I learned that markers are moved because of relocation of the physical object (e.g., a building) they commemorate, initial erroneous localization, land privatization, or a natural event (e.g., flooding).

Examples include:

In 2002, the First United Methodist Church moved to a new location at 3160 East Spring Creek Parkway for more visibility and congregational growth.

(Supplementary plaque appended to “First Methodist Church of Plano”)

This marker was relocated here to the actual site of the Confederate Reunion Grounds by the Limestone County Historical Commission, 2003.

(Supplementary plaque appended to “Johnston Reunion Grounds”)

2004—Family of Bentley Moses Jones moved marker 1 mile NW to Derden Cemetery due to privatization of road leading to the home, now in disrepair.

(Supplementary plaque appended to “John A. Kimberlin Residence”)

1956. This monument was removed to its present location when its original site, 7 miles southwest, was inundated by Lake Texarkana.

(Supplementary plaque appended to “Site of Epperson’s Ferry”)

Although the reasons for most relocations remain elusive, where the marker is moved to is of particular interest to geographers. Typically, relocated markers move from isolated spots to more populous areas like courthouse lawns, plazas, parks, museums, cemeteries, or sidewalks. In urban settings, markers are moved from the periphery to the downtown area and from roads to sidewalks. This type of movement is most evident for

the Highway Markers erected to commemorate the centennial anniversary of the Texas Revolution centennial in 1936. These markers memorialize the establishment of 220 counties and the location of forty-four historic sites (Schoen 1938, 181). They are also called Highway Markers due to their location along State or U.S. Highways, at city limits, or outside of urban centers. For example, the “Chambers County” marker on State Highway 61 was placed only 0.1 miles east of Anahuac, whereas “Lynch’s Ferry” on U.S. Highway 90 is located twenty-two miles northeast of Houston. Many Highway Markers were later moved from the peripheries of cities to the downtown areas in order to make them more visible to pedestrians.

These centralization efforts have resulted in the concentration of markers in relatively small areas, thus leading to “symbolic accretion” (Foote 2003; Dwyer 2004; Post 2009). In the city of Temple, for example, eight plaques are located in front of a historic hospital to commemorate the doctors and nurses who worked there; in Hallettsville, seven markers erected between 1957 and 1967 are all located in a memorial park, with four dedicated to veterans of the Battle of San Jacinto (1836), two dedicated to Confederate officers (1861–1865), and one dedicated to pioneer settlers killed by Native Americans (1834–1841). All these markers are equal in size and made of pink granite, a design that defined the style of the late 1950s and early 1960s. Still, markers need not possess a coherent topic or art style. In Orange, near the Texas-Louisiana border, nine markers located along the Sabine River commemorate a variety of events and periods including historical figures, a Native American tribe, transportation hubs, the sawmill industry, and a local newspaper. The collection includes a marker not erected by the THC, but instead placed by the American Legion, that honors “those who were killed in

action.” Some markers have simply disappeared, only to be found later—my edited dataset (see Chapter I) shows that the location of 410 markers out of 16,809 is missing, with only fifty-seven erected later.

As is the case for other commemorative programs, Texas markers take advantage of their small size and lightweight to tell a story efficiently and in place (Foote 2003; Alderman 2012; Loewen 2019). This makes the markers at risk for theft or vandalism, more easily so in rural settings than in busy urban areas, in private rather than public lands. Installing cameras is not an option, for legal as well as economic reasons, and therefore program administrators are left with no choice but to note the disappearance of a marker by adding to the dataset statements such as “this marker was reported missing as of Apr 2009.” User-provided online databases and Google Street View provide information that can help trace missing markers, but of course this is more often the case in urban than in rural areas. Also as concerns location, 373 markers result erected at conveniently accessible locations rather than where the commemorated site actually is. For instance, the “Mushaway Peak” marker is on U.S. Highway 180, approximately four miles south of the peak, which is, of course in full view of the observer. Distances are usually expressed in miles (83.4%, or 311 markers) with yards used in thirty-six (9.7%) cases, and feet in seventeen (4.6%). Street blocks are used in seven markers and direction only in two. The shortest distance is one hundred feet (“The XIT Ranch South Line” and “Site of Old Hawkins Springs”), the longest forty miles (“Old Mobeetie Trail,” which mentions the name of the town at its end).

Interestingly, several markers erected in 1936 for the centennial anniversary of the Texas Revolution are accurately located, but the object of commemoration does not exist anymore (e.g., a razed mission), has fallen into decadence (e.g., a ghost town) or is no more accessible because in private hands. In these cases, historical authenticity often results in geographic isolation and neglect. Once the markers are out of sight, little is known about their actual status; thus, some isolated markers listed in the THC dataset may or may not be still at their recorded location. The good news is that a handful of independent researchers and hobbyists have engaged, often with the help of locals, in investigative expeditions to determine the status of certain markers. As an example, the *Medallion*, the quarterly magazine published by the THC (2011, 14–5), in 2011 covered photographer Barclay Gibson’s journey to find lost markers:

... The “Buried Here” marker location is described in the Texas Centennial Commission’s 1938 book as being 20 miles east of Newcastle. Vague descriptions are common obstacles for Gibson, and he has also discovered that markers are occasionally left out of the book completely, surfacing only when a local volunteer contacts him with information. ...

When they finally reached the “Buried Here” marker, ... it had laid flat on the ground for many years until sometime in the 1970s, when a group of men received permission from the land owner to stand it back up with a concrete base and build the surrounding pipe fence that protects it from cattle. ...

Note that indicating location in relative terms (directions) rather than absolute (geographical coordinates or street addresses) may seem less accurate at first but is often more appropriate and informative, especially for large physical features (e.g., a peak). Take the example of the “Dimmit County” marker, registered as erected at 28.56992979°

N, 99.83576450° W. This eight-digit locational precision is actually the result of a way more vague textual description: “3.7 miles north from Carrizo Springs, along U.S. Highway 83” (Schoen 1938, 195). To record the multiple levels of positional accuracy and precision existing in the THC dataset, I added a column ranking the marker as a verified pinpoint, an unverified spot, an areal coverage, a crude estimation by text, or an unidentifiable place. The “Dimmit County” marker is categorized at the second lowest accuracy level possible.

Finally, note that markers commemorate events that occurred at different scales, sizes, and geometries ranging from a small well to an expedition route, a river, a building, a battle site, a county, and even the entire state (Azaryahu and Foote 2008). With markers erected at specific locations, mismatches are frequent, as is the case for the marker “Approximate route of U.S. Army March to Rio Grande, 1846,” at 27.35246507° N, 97.83118516° W, which is a point representing a long trail on the ground.

To sum up, markers may not be as impressive as statues and large monuments (Bodnar 1992; Gillis 1994; Levinson 2018) but they are effective ways to convey a specific narrative to the public, as they are informative and numerous. This is also the case with the Texas marker program, whose materiality has emerged as a powerful and strategic storyteller that operates at multiple geographic scales and communicates directly and with immediacy with the readers via physical inscriptions.

### **Texas historical markers: materiality as text**

A marker is subject to rewriting in the course of its life, and its materiality renders

this process visible to the readers. Markers are rewritten for three main reasons: the emergence of new information, the authorities' need for a new narrative, or impetus from the civil society (Foote 2003; 2012; Loewen 2019). Intertextuality sees this process as the result of social agents engaged in the endless writing and rewriting of texts, with the public often demanding or needing new narratives and the authorities often setting the terms of the new narrative, in a cyclical turn of events: for instance, Texas authorities tried to boost public morale during the Great Depression by celebrating the centennial of the Texas Revolution (Campbell 2003, 361). Storytellers also often preempt possible controversies by censoring the markers (Apel 2014).

Texas historical markers have been subjected to three types of text editing: addition, deletion, and overall revision (Figure 13). In the first case, a small plaque is added to the existing marker to record new findings, to inform of relocation from a previous site, or for other reasons (e.g., the addition of a list of donors or the former presidents of an association). Text is deleted from a marker when the information conveyed is questionable or unverified. The last option is comprehensive revision, defined as changes to the inscription longer than a paragraph. Lengthy editing results in the erection of a new marker with a dual timestamp at the bottom of the marker. Markers may also be replaced because of legibility issues to weather conditions. Overall, 231 out of 16,809 inscriptions were edited once, and two markers were edited twice ("Burnam's Ferry" and "Site of Camp Hulen"). Of the 233, addition accounted for 29.6% of the cases (sixty-nine markers), removal for 0.9% (two), and overall revisions for 69.5% (162).



Figure 13. Three types of text editing. (A) Addition, (B) deletion, and (C) overall revision. Source: flickr.com (left C), waymarking.com (others).

The addition of a small plaque is a far more efficient choice than the creation of a new marker, which requires reviewing an application, chooses the size and type of the marker, its approval and manufacturing, a dedication ceremony, and its addition to the THC online dataset. Editing can also promote a positive narrative that the official agency is open to feedback. As an example, in Figure 13A, the “Gholson Cemetery” marker includes a small plaque to amend the original 1981 text:

Further research has shown that the oldest marked grave in the cemetery is that of Ann Ophelia Umberson (May 12, 1843 – Dec. 14, 1875).

The THC dataset does not say when the new plaque was added to the old one, but one contributor to findagrave.com uploaded a picture capturing both old and new texts in November 2008, so it is plausible that the small plaque was added sometime earlier.

In most cases, supplementary plaques are added to record the relocation of a marker. For example, the original (1965) inscription of the “Mirabeau Buonaparte Lamar” marker states that “he is buried near here, in the Morton Cemetery.” However, when the marker was moved from the cemetery to Lamar Consolidated High School in 1993, the word “here” became incorrect. To prevent misinterpretation, a small plaque noted that the marker had been relocated. The Mirabeau Buonaparte Lamar marker tells the story of three eras (Lamar’s life path, 1965, and 1993) in one place, to which visitors add another one when they read the text (Loewen 2019): somebody encountering the marker in 2023 may have a different understanding of Lamar from the reader the marker’s creators had in mind in 1965. Erected in 1965 and relocated in 2006, the “Site of Old Lexington Village” was moved, like the Lamar marker, from its historically

accurate site to the county courthouse square. A rule followed when this type of editing is performed is that the new plaque cannot be larger than the original marker and must be concise. The result is a text that often, but not always, omits to mention relevant information, such as the year of relocation and the reason for relocation, or the name of the person or persons who unearthed the new information. An exception is the lengthy addition to the “Site of Waco Indian Village” marker. In this case, county officials added a stone plate far larger than usual, with a long explanation:

This marker, placed by the McLennan County Historical Commission on October 10, 2014, corrects an error on the original centennial marker. Further research has shown that it was the Cherokees, rather than the Comanches, who besieged the Wacos/Huacos Indians in 1829–1837, causing them to disperse gradually and move on to other areas.

This is indeed a rare exception and the full story is told in a local newspaper’s article (Ament 2014): the descendants of the wrongly accused Comanche objected to the veracity of the old text, the county commissioned follow-up research, and the state (THC) asked the county to add the supplementary text. When the new plaque was officially unveiled in 2014, Waco Indian representatives were in attendance—but, apparently, not the vilified Comanches.

In only two cases was text deleted from a marker. One concerns the “Mineola Masonic Lodge No. 502, A.F. & A.M.,” whose relocation is recorded in the THC dataset,

but no reason is given for why, when, and how the inscription was edited. Fortunately, a contributor to waymarking.com was able to track down the original text:

(Before deletion) Mineola Masonic Lodge occupied several meeting places before moving to the present location in 1929. The lodge purchased the building in 1945.

(After deletion) Mineola Masonic Lodge occupied several meeting places before moving to the present location.

The deletion with black paint of the words after “location” is a quick way to avoid confusion (see the case of “here” above) and a testament to the fact that a marker’s materiality is more dynamic and fragile than one may expect. The other example of deletion of part of a text is found in the “Confederate Veterans” marker (Figure 13B), erected in Fort Worth in 1965: as in the Mineola’s case, here too two lines of text have been erased with black paint. One user of waymarking.com found the text of the deleted passage: “Last Civil War soldier of either army, the Texas Confederate Walter Williams, died in Houston in 1959, aged 117.” The marker was changed after a journalist named Lowell Bridwell questioned the date of William’s birth, based on historical records showing he was born later than 1842 and was therefore too young to fight in the Civil War (United States Congress 1959). This, however, did not dissuade the state of Texas from erecting another marker to commemorate Williams: erected in 1970 at the site of his burial, the “General Walter Washington Williams” marker still gives his date of birth as 1842.

The third and last category of text editing consists in the overall revision of a marker. As seen in Figure 13C, the “Don Joaquin Crossing on Bedias Trail” marker was erected in 1979 and comprehensively revised in 2017, with changes to its title, main text,

and appearance. The new text added an alternative name (Procella Crossing), detailed the background of Don Joaquin's reconnaissance mission, and renamed the travel route "Bidai Trail." The new text also dropped the story of a nearby ranch because a separate marker commemorating its owner was also erected in that year ("Vincente Micheli"). The earlier text also misspelled the ranch owner's last name ("Michili"). The new inscription lists two dates (1979, 2017) to make clear that two versions of the same inscription exist.

To help tracking down revisions to marker of the kinds discussed above, I often consulted sources alternative to THC. The book series *Why Stop*, published as a traveler's guide in various editions (Dooley and Dooley 1985; Awbery and Dooley 1992; 1999; 2005; Awbery and Awbery 2013) was especially useful to track down the original text of the edited markers, as is the case for the "Site of McLaurin Massacre," which was revised by THC in 2004. The fourth edition of *Why Stop* (1999) lists the text of the marker as follows:

Site of McLauren Massacre  
(Last Indian raid in Frio Canyon)

Occurred here on April 19, 1881. Mrs. Kate McLauren, her 3 small children, and 15-year-old Allen Lease were in the garden when Lipan-Apaches started to plunder the McLauren home.

Lease, thinking pigs were in the house, was shot investigating the noise, and Mrs. McLauren was killed as she fled the garden. The children were unharmed and Maud, 6 years old, went for help because Mr. McLauren was away.

Neighbors gave chase for 70 miles. Soldiers from Ft. Clark then took command, trailed and overtook the Indians in Mexico, killing all but two.

(1968)

A revised version of this text appears in the THC online dataset (emphasis added by the author):

Site of McLaurin Massacre  
(Last Indian raid in Frio Canyon)

On April 19, 1881, Catherine “Kate” Ringer McLaurin (sometimes McLauren) was with her three small children and 14-year-old Allen Lease in the garden when a band of Lipan Apaches started to plunder her home. Lease, thinking there were pigs in the house, went to investigate the noise and was shot and killed. Catherine was also shot, dying hours later, but her children were unharmed. Maud, age 6, went for help because her father, John McLaurin, was away. Neighbors gave chase for 70 miles before soldiers from Fort Clark took command. Soldiers trailed the party into Mexico, reportedly killing all but two.

(1968, 2004)

Reflecting recent research findings, the marker includes the alternative last name “McLaurin” and corrected the age of the woman commemorated. The term “reportedly” made the casualties estimate less conclusive and the timestamp at the bottom of the plaque noted the year the text was edited. The process of overall revision tends to make the text of a marker longer, thus requiring a larger plaque. For example, the “Black Education in Orange County” marker was erected in 1988, as a small (18” × 28”) aluminum plaque. The revised (2004) version required a larger (27” × 42”) plate, as the text’s length increased from ninety-five to 265 words. Centennial Highway Markers (1936), featuring a bronze inscription tablet affixed on top of a pink granite block, similarly tend to result in longer inscriptions when edited. However, in this case plaques are not increased in size due to the material characteristics of the 1936 markers. Of the

220 Highway Markers commemorating counties' histories, forty-six (20.9%) were revised, with additional information added to the original. For instance, the 1936 text of "Uvalde County" concisely summarized the dates of the county establishment, its name origin, and the county seat in only thirty words. The 1965 edition of the same marker added local products, historic sites, and attractions using ninety-one words in the same-sized marker. The new text also mentions the home of John Nance Garner, the first Texan elected Vice President of the United States (in office from 1933 to 1941).

### **The Stolpersteine program**

The Stolperstein (plural: Stolpersteine) project remembers the victims of the Holocaust by inscribing the name of individuals on brass plates placed in front of the homes they resided in. The project was started in Germany by the artist Gunter Demnig and has since expanded to other parts of Europe. Demnig came up with the idea in 1990 when the city of Cologne hired him to create a memorial trail for Roma and Sinti Holocaust victims (Cook and van Riemsdijk 2014). In 1996, Demnig placed the first Stolperstein in Berlin, without permission. Retroactively legalized in 2000, the project quickly spread across Europe, triggering both advocacy and controversy. In April 2022, the 90,000<sup>th</sup> Stolperstein was installed in Penzberg, Germany (Deutschland.de 2022).

The text of the marker—inscribed in a ten-by-ten-centimeter (or approximately four-by-four-inch) space—simply lists the person's name, year of birth, date of death, and fate. The marker sits on a concrete block topped by a brass plate, with only the metal surface visible. The victims commemorated were deported, murdered, interned, exiled, or

committed suicide (Apperly 2019). The project's webpage (<https://www.stolpersteine.eu/en/home/>) explains that Stolpersteine aims at involving survivors as well, in a kind of symbolic reunion. Lacking enough textual space to add details, the tiny brass plates concisely but explicitly describe crimes the Nazi perpetrators committed. For example:

HIER WOHNTE  
MARION EHRLICH  
JG. 1928  
DEPORTIERT 29.11.1942  
ERMORDET IN AUSCHWITZ

Here lived Marion Ehrlich. Born in 1928, deported on November 29, 1942. Murdered in Auschwitz (the original inscription and translation were cited in Cook and van Riemsdijk 2014, 138).

The design characteristics of Stolpersteine result in markers that have been described as “literal,” in the sense that they give information on birth date, fate of death, but simultaneously “not literal” given that their concise inscriptions require the viewer to have a certain knowledge of the history of the Holocaust (Harjes 2005, 146–7). Ideologically, Stolpersteine intend to shed light on the individual victim—almost always totally unknown to the general public—and not to add to the amount of knowledge regarding the Holocaust (Apel 2014).

The principal difference between the Stolpersteine and the Texas markers program is its commemorative scale. The Texas program accepts solicitations to erect new markers and local volunteers' contribution is crucial to the official agency's operations. But decisions regarding which new markers should be created, where they should be placed, and the maintenance of the marker are the exclusive purview of THC.

Furthermore, while a Stolperstein always only commemorate one person, Texas markers may memorialize one or more individuals, as well as organizations, military events, the establishment of counties, and many other topics. For these reasons, scholars have called the “stumbling stone” an example of micro-commemoration. What started with the work of one person (Demnig) has blossomed into a six people project as of January 2023.

When a new marker is placed and dedicated, photographers document the ceremony, taking a picture of both the installer (often Demnig) and the marker as this is dug into the pavement (Cook & van Riemsdijk 2014; BBC 2022; Deutschland.de 2022).

According to Bodnar’s (1992) conceptualization of public memory, Demnig’s artwork is closer to the “vernacular” culture shared by ordinary people than the “official” counterpart wielded by nation-states. A similar distinction is found in Gillis’ (1994) “popular” and “elite” memories. Bodnar explains that the former includes diverse people from all social stations and is directed at small social networks, the latter is directed at much larger groups, including people who have no social ties or bonds with the commemorated. In this case, nationalistic and patriotic ideals are emphasized to spur “imagined communities” into unified action (Anderson 1991; Gillis 1994; Billig 1995). Others have contrasted the stumbling stone’s materiality to large memorial projects, especially the Memorial for the Murdered Jews of Europe in Berlin (Till 2005; Smith 2022). After the unification of Germany in 1990, the new government strived to signal its political ideal of integration through the Memorial, a vast (19,000 square meters) plaza where 2,751 concrete slabs were placed (Harjes 2005). Despite the Holocaust theme of the Memorial, some critics argued that it seems to speak to a government’s narrative of unity rather than actually commemorating the victims, due to an abstract style that fails to

explicitly tell the story of who did what to whom (Smith 2022).

Returning to the Stolpersteine, Apel (2014), the director of an oral history archive, maintains that the need for restoring individual victims' biographies increased in Germany as material witnesses of the Holocaust started to die out and that the founding principle of the Stolpersteine—one person per plate—galvanizes public attention and increases media coverage. Unlike historical markers in Texas, the memorialized need not to be famous or even well-known individuals, which Cook and van Riemsdijk (2014, 138) see as symbolic of the “human dimension of the Holocaust.” This, in contrast with traditional commemorative artifacts—including the Memorial above—which often remember victims as anonymous groups or as numbers. The United States and other countries offer such an example of incarnated anonymity with the tomb of the “Unknown Soldiers” of World War I, with which any citizen could identify with, both in personal and symbolic ways (Gillis 1994). Collective tributes of this kind were once predominant in Germany, but starting in the 1970s and 1980s this type of commemoration has been criticized as faceless and nameless (Apel 2014; Cook and van Riemsdijk 2014). Gould and Silverman (2013) see the Stolperstein as an example of this new way of memorializing people and events, calling the stones a “counter-memorial” (Jordan 2006; Harris 2010). Crucially, a Stolperstein “stands for” each victim by rejecting ritualized forms of commemoration (Harjes 2005, 144). The location of the stone in front of a residence, place where Nazi violence occurred, thereby intentionally reverses the perpetrators' viewpoint—the indiscriminate transformation of people into numbers (Giordano and Cole 2018). It also contrasts with the tendency to relocate the marker to where it can be easily viewed, as has been the case in many commemoration projects.

In this sense, Texas markers respond to the same logic as the Memorial in Berlin. As noted earlier, Texas markers are often gathered near each other, while Stolpersteine are scattered so that passersby “stumble” over them and are suddenly forced to confront the stone’s—more importantly, the victim’s—existence without having planned to do so. (Note that when Stolpersteine are placed together, it is because several victims lived there.) Still, Stolpersteine were criticized by members of the Munich’s Jewish community in the mid-2000s, on account that they can be soiled by people walking on them and by the elements (Apel 2014; Smith 2022). Markers similar to Stolpersteine, but larger, were installed in Texas in the late 1950s and early 1960s, as pink granite markers buried at the ground level (Figure 12). These markers were intentionally designed to resemble normal gravestones because they were dedicated to the veterans of the Texas Revolution (1836), the Civil War (1861–1865), and other wars. Unlike Stolpersteine, though, most Texas gravestones are installed in burial sites and in cemeteries, far from residential areas, and although they are at ground level and therefore could potentially be overlooked, their placement in cemeteries is conspicuous. It is unthinkable for visitors to step on these markers accidentally, as is the case with the Stolpersteine.

The micro geographic resolution of materiality of Stolpersteine is very different from most other forms of commemoration. In a sense, stumbling stones actively disperse like salespeople knocking on a disinterested neighbor’s doors. In contrast, Texas markers gather and concentrate in the urban core, just like merchants in a traditional marketplace, waiting for their customers. Stolpersteine deliberately “re-place” the victims where they lived before the tragedy that engulfed them (Cook and van Riemsdijk 2014, 146), and this is why most inscriptions begin with the phrase “Hier wohnte...” (Here lived...). The co-

existence of past and present has evoked sentiments of sympathy as well as rejection from current residents as these are uncomfortable memories. Current residents may identify with previous occupants and realize that violence is never far from everyday life (Smith 2022), while others may find it uncomfortable to confront unwanted stories literally at their doorstep (Blatt 2012). That Stolpersteine elicit such strong and different reactions attest to their speaking directly to the individual.

### **The Seoul historical marker program**

Seoul, the capital of South Korea, launched its first commemorative marker program in 1985 to prepare for two international sports events, the Asian Games in 1986 and the Olympics in 1988 (Park 1991). This dates the program to half a century later than the centennial anniversary marker of Texas, but the primary motivations of the Seoul's program are substantially the same: to convey a historical narrative to its citizens as well as to the visitors. Choi (2018) conducted a pilot study on the Seoul Historical-Cultural Markers, building a historical GIS of the markers erected in one of the twenty-five districts of Seoul—the Jongno District. Markers were erected in this district as early as 1985 and Jongno accounts for 51% (or 164 out of 322) of Seoul's total markers as of December 2017. The Jongno District has long been at the heart of the country's historical capital, starting with the Joseon Dynasty (1392–1910) and throughout the Japanese colonial period (1910–1945), the United States interim military government after World War II (1945–1948), and the Republic of Korea (1948–present). The name “Jongno,”

literally the “street with the bell,” derives from the belfry signaling the daily opening and closing of the capital’s gate (Jongno-gu 2023). The district and its name were given legal status in 1943 and the current boundary was established in 1975.

Seoul’s markers program is in many ways similar to Texas’, only smaller in number and more recent. Markers erected in the 1980s and 1990s are materially identical—a granite block, slightly larger than the Texas Highway Markers—but their appearance started to diversify immediately before the 2002 World Cup in Korea/Japan, when the city experimented with novel designs, including stone columns, brass tablets, and dark aluminum plaques (Figure 14). New digital printing techniques that replaced hand chiseling made possible to use smaller characters and therefore write longer inscriptions in the same physical space.

Seoul’s city markers memorialize the residences of historical figures, royal palaces, government offices, fortress gates, private schools, springs, etc. Several Christian martyrs are commemorated at the site where they were executed and at these locations visitors also often find markers erected by the Catholic church. A trail, the Seoul Pilgrimage Route, connects these sites; its sacrality and relevance were officially proclaimed by the Vatican on September 14, 2018, when the trail was declared the first Asian International Pilgrimage Site (Archdiocese of Seoul 2023; Figure 15). These markers exemplify Foote’s (2003) concepts of “sanctification” and “symbolic accretion”: while the martyr’s death was a tragic event for religious followers and family members when it happened, this sorrow has been transformed into a glorious event through the enshrining of historical markers. The Vatican’s retroactive approval further reinforced this glorified past.

Granite block (1980s – 1990s)



Granite cylinder (early 2000s)



Granite plate (early 2000s)



Brass plate (early 2000s)

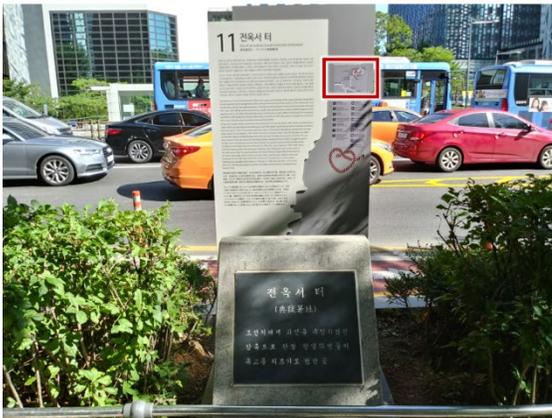


Aluminum plate (current)



Figure 14. Seoul Historical-Cultural Markers. Photographs of the author (upper left corner – May 2019, others – September 2018).

(A)



(B)



Figure 15. Sanctifying a place by symbolic accretion. (A) Two markers commemorating the same place of martyrdom, “Site of Jeonokseo: Local Correction Institution.” The Catholic church plate backs the municipal granite block. (B) Locator map of the Seoul Pilgrimage Route. Photographs of the author (September 2018).

In reference to American society's understanding of its often tragic and violent past, Foote has argued that "sanctification" and "obliteration" reside at opposite extremes of a continuum. In this sense, Seoul's markers program is notably different from Texas' as it does not dwell on martial themes. The primary initial driving force of commemoration in Texas was the centennial anniversary (1936) of the Texas Revolution, a victory over Mexico. The Confederate Army's defeat in the Civil War—with Texas on the losing side—was reframed into a narrative according to which both the Union and the Confederacy armies fought for a just cause, artfully switching the Southerner's focus to regional pride from defeat in war and the legacy of slavery (Savage 1994; Dwyer and Alderman 2008; Brown 2019). The martial past is hardly remembered in the Seoul markers because its narrative is one of defeat. The capital and its royal palaces were occupied and ravaged by the Japanese Toyotomi regime in 1592, the Chinese Qin Dynasty in 1636, during the Sino-Japanese War in 1894, and by the North Korean communist armies in 1950. These attacks on the capital resulted in indelible traumas to Korea's national pride, and the city's authorities have felt no need to revisit and revitalize this shame, instead deciding to ignore it. The only exception are Korea's patriotic protests against the Japanese Empire, which involved demonstrations for independence, the assassinations of foreign colonists, and the bombing of economic agencies that were exploiting Korean labor and people: it is on these acts of rebellion that a sense of pride and connection to the past is built. The *Constitution of the Republic of Korea* itself declares that the country's legitimacy is inherited from these fights for independence and democracy.

Choi (2018) divides the Seoul marker program's history in two stages: expansion (1985–2008) and reassessment (2009–2018), with the latter resulting in relocations, text revisions, and the sudden disappearance of some markers, as has been the case in Texas (but not for the Stolpersteine). According to Choi, thirty-six markers have been relocated and forty have been removed from Jongno District since 2009. These changes have coincided with the completion of Gwanghwamun Square, which splits Sejong Boulevard in two, like a highway's median strip. Several markers along the sidewalks were temporarily removed during the road construction, to be reinstalled later on the new square's ground, like Stolpersteine (Figure 16). There were little to no controversies or debates about this relocation, as people were more concerned about traffic congestion and also because none of the plaques commemorates specific individuals, but rather the location of old government buildings, legacies of a kingdom that ended a century earlier. In other cases, relocation was the consequence of—as is the case in Texas—of new research or lack of accessibility.

Like in Texas, Seoul markers have positional accuracy issues. The official marker dataset of Seoul, as of December 2017, lists location in terms of latitude/longitude, nearby landmark, and address. This is because relying on only one locator is risky for administrators and citizens. Geographical coordinates cannot be navigated without a GPS unit or a cell phone. Landmarks appeal more effectively to how humans navigate their environment, but they may change, especially in a country's capital: a description like “the marker is in front of Café Seoul” becomes misleading if the establishment renames itself “Café Jongno” or closes.



Figure 16. Seoul marker relocated after road construction. (A) A metal marker was installed at the ground level. The text represents the old site of Uijeongbu, the highest government office of the Joseon Dynasty. (B) Gwanghwamun Square occupied Sejong Boulevard in the middle. Photographs of the author (September 2018).

Finally, the Seoul dataset retains a one-of-a-kind issue: its dual address system. The first modernized address system in Korea was introduced by the Japanese Empire in the 1910s, along with a comprehensive land survey of the colony (Choi 2017). After World War II, the newly born Korean government (1948–present) continued to use the Japanese system with only minor revisions, like changing place names from Japanese to Korean. In the meantime, Jongno District featured several commemorative street names, but the new toponyms were not officially incorporated in the address system. A turning point came in the mid-1990s when the Korean administration decided to conform to international standards (Mask 2020). This occurred in tandem with globalization efforts led by the Cold War’s winner—the United States. It took almost twenty years for the system to change, though. Prototype guidelines for Seoul were developed in 1996, but implementation was unexpectedly delayed by the 1997 financial crisis and public opposition to the abandonment of a century-long “tradition” (Choi 2017). The revised

system, which adopted the American street address system, was finally declared the only legal one on New Year's Day 2014. As a result, Seoul's marker dataset records the location of marker in four ways: (1) latitude/longitude (unaffected by policy change), (2) nearby landmarks (need periodical updates), (3) the old addresses (obsolete since 2014), and (4) the new address. For instance, the "Site of the Home of Ernest Thomas Bethell" marker is georeferenced as:

- Latitude/longitude: 126.965541000° E, 37.571439700° N
- Landmark: Located inside Woram Neighborhood Park, 840 meters away from Gate 5, Seodaemun Subway Station.
- Old address: 2-31 Hongpa-dong
- New address: 52 Songwol-gil

## **Conclusions**

This chapter addresses a perceived lack of attention in current geographical research to the storyteller (the marker), in favor of the story the marker tells. To do so, I discussed three historical marker programs, in Texas (at the scale of the state), Germany (country), and Seoul (city), all of which have not been studied by geographers of commemoration. The three samples reveal a variety of commemorative patterns stemming from materiality. The Texas example, the largest and most complicated of the three, tracks the story of the storyteller quite effectively, with monthly published

revisions, supplemented by user-provided databases, Google Maps, the *Why Stop* publication series, and other resources which taken together keep the dataset current.

In Germany, Stolpersteine's strict adherence to the principle of memorializing individual victims of a single event (the Holocaust) using small, durable, plates installed at ground level, stands in contrast to the Texas markers' variation in size, material, text length, dedication site, and topic. Stolpersteine are placed in front of the building where each victim used to reside in and on the sidewalk where people pass every day. In spatial terms, this pattern of distribution is dispersed and historically accurate, while in Texas the pattern is concentration in populous urban centers. As a "counter-memorial" that breaches the common sense held in commemoration, a Stolperstein outrightly negates the perpetrator's viewpoint and narrows the geographic scale to the building where people lived, in a case of both geographical, thematic, and historical micro-narrative. The stone's spatiality is not free from controversies, but Demnig's model of commemoration has proved so successful that it has now spread from Germany to the rest of Europe. Its size—90,000 markers as of April 2022—dwarfs Texas.

The Seoul Historical-Cultural Markers are similar in their materiality to Texas'. Both programs originate in contemporary events, the Asian Games of 1986 and the Olympics of 1988 for Seoul, and the centennial anniversaries of independence from Mexico and the end of the Civil War for Texas. The audience is also the same: local residents, tourists, and visitors. Seoul and Texas also make a conscious effort to make the sites accessible and easy to find, providing locational information in various ways. Seoul's program is clearly unwilling to remember war events, and only protests against Japan's occupation are commemorated.

It also must be noted that intermediate changes in materiality—marker relocation and text revision—occurred in Texas and Seoul but not in Germany. This phenomenon largely stems from the Stolpersteine’s micro-scale of commemoration: they are relative to a single event (the Holocaust), they are narrow in focus (individual victim), and they cover a short time span (victim’s birth to death). Before chiseling their inscriptions, Demnig and his team interview the families of the victims, consult archives, and speak to historians. The civic authorities responsible for the marker program in Texas and Seoul also engage in historical research, but state agencies are often pressured into commemoration by local authorities intent on promoting local pride, as is the case for Confederate General Walter Williams’ controversial date of birth. Moreover, Texas markers are usually lengthy affairs that typically involve many people and long time spans. The outcome of this process is almost always a lengthy narrative which is by its nature prone to be contested and reassessed. Interestingly, initially in both Texas and Seoul inscriptions tended to be shorter: 1936 centennial grave markers in Texas, in particular, narrated a person’s life in a way similar to the Stolpersteine (name, birth, and death). For example, the “John Andrew Box” marker erected in Houston reads:

John Andrew Box

A veteran of San Jacinto

Born in Tennessee, July 2, 1803

Died August 2, 1874

Erected by the state of Texas

1936

More recently, though, the public's demand for stories, the authorities' passion for educating its citizens, and technological developments have resulted in longer inscriptions. The trend of text-lengthening over time is well illustrated in Figures 12 (Texas) and 14 (Seoul), while Stolpersteine have maintained their strict text formatting for three decades.

## V. CONCLUSIONS

This dissertation has analyzed the spatial, temporal, and thematic patterns of the Texas Official Historical Markers program to define its uniqueness and situate it into the broader framework commemoration in the United States. Overall, this study shows that the marker's narrative offers a vision of Texas as a unique land shaped by interactions between multiple groups in the context of a historic borderland. Spatially, this is in contrast with the markers' concentration away from the border and in urban areas, or where the markers can be easily seen (e.g., highways). This is because their audience is today's public and historical-geographical accuracy is often only a secondary consideration. From a temporal perspective, spikes in markers erection coincided with two anniversaries, 1936 (centennial of the Texas Revolution) and 1965 (centennial of the end of the Civil War). Interesting to note is the transition from war to peace that occurred around the 1960s and 1970s, perhaps the most unexpected and significant finding of my analysis.

This study also has limitations. First and foremost, a program of this size is difficult to manage and update, and the THC dataset has several holes and inaccuracies that I tried to fill and correct. This is also a dataset unlike any other in the United States as concerns size, completeness, and scope, and therefore I had to choose what to analyze, in terms of spatial, temporal, and thematic patterns. As concerns the latter, for example, the term "indian" could have been further categorized in terms of individual tribes and nations—"comanche," "cherokee," "apache," "lipan," "wichita," and others—to reveal

Texans' attitudes towards specific groups. Also, some markers include tiny inscriptions on the back of the plate that contains information regarding who proposed the marker, when a certain building was restored, and the names of the researchers who studied the subject. This information is not discussed in this study as most of it is not included in the THC dataset and it is also often illegible, even in the user-provided photographs available online. If analyzed and assuming a complete list could be compiled, these annotations could reveal other spatiotemporal patterns—for example, the most frequent proposers of markers (people or organizations), the correlation between the timing of building's restoration and marker's erection (according to my cursory analysis, it generally takes less than five years before a restored historic building obtains a marker commemorating it), and others.

Finally, it is hoped that this dissertation's analytical methodologies and results may encourage more interdisciplinary studies of commemoration that employ a range of methods—quantitative as well as qualitative—as is the case here with corpus linguistics, narratology, and GIS. The large size of a corpus—over two million words in the case of Texas markers—is the primary obstacle that prevents scholars from exploring a state's historical marker program in its entirety, leading instead to deductive—when not simply anecdotal—studies. This dissertation demonstrates how to handle “big data” in the context of commemoration via the inductive and systematic reading of an entire corpus. By combining corpus linguistics, narratology, and GIS, future studies can result in new avenues of research: for example, the study of corpora written in languages other than English, narratological comparisons between different American states based on a uniform methodology, and the large-scale comparison of markers' text and location

before and after political upheavals (e.g., the fall of the Communist regime in Eastern Europe and the newly found independence of many African and Asian countries in the twentieth century). The exploration of these themes will allow us to better understand the dynamic selectivity of commemoration and perhaps offer future generations of historical markers' administrators guidelines for their creation.

I would like to conclude this dissertation with a final point concerning the absence of the term “white” from the list of most frequently occurring racial and ethnic terms. A word's low frequency in a corpus does not necessarily mean the term is insignificant. In this case, quite the contrary is true, and in fact the term “white” shows up by ethnicity: “german,” “spanish,” “french,” “english,” “czech,” “irish,” “swedish,” and “italian” are mentioned more than one hundred times in the THC dataset. For comparisons, African Americans are grouped into the single category of “african+black+negro” and this of course is because their African ancestors were forcibly transported to America as slaves, in the process losing their cultures and characteristics of uniqueness. This rupture stands in stark contrast with the case of the “german” migration, in which successful early settlers sent letters of invitation to their families and friends to join them, eventually forming a cluster of population (and of words in the markers) in Central Texas. Asian Americans are, like “whites,” remembered as “korean,” “chinese,” “japanese,” and “vietnamese,” but of course these groups came to Texas in number only after the frontier narrative that is at the center the story of Texas was over. Interestingly, Native Americans are memorialized as a single undifferentiated group (“indian+native”) but also identified by tribe (“comanche,” “cherokee,” “apache,” “lipan,” “wichita,” etc.), in the latter case

most often to distinguish the “good” Indian from the “bad” one. That different groups are commemorated differently is of course well-known, but what clearly emerges from corpus linguistics analysis is that these differences extend to as far as where we are willing to go when it comes to differentiating between subgroups of race and ethnicities. Texas markers tell in large part a story of colonization and of often violent and bloody encounters between different groups and in this sense to say that the colonizers are “white” is redundant. Let’s return for a moment to the “Site of the McLaurin Massacre” marker cited in Chapter IV (emphases added by author):

Site of McLaurin Massacre  
(Last Indian raid in Frio Canyon)

On April 19, 1881, Catherine “Kate” Ringer McLaurin (sometimes McLauren) was with her three small children and 14-year-old Allen Lease in the garden when a band of Lipan Apaches started to plunder her home. Lease, thinking there were pigs in the house, went to investigate the noise and was shot and killed. Catherine was also shot, dying hours later, but her children were unharmed. Maud, age 6, went for help because her father, John McLaurin, was away. Neighbors gave chase for 70 miles before soldiers from Fort Clark took command. Soldiers trailed the party into Mexico, reportedly killing all but two.

(1968, 2004)

There are many characters in this story, but only “Lipan Apaches” are identified by their ethnicity. The word “white” is not needed because its assumed audience already know that the protagonists of the story are white.

Returning to the narrative for African Americans, I have already noted that the collocates list of “african” consist in great part of positive terms related to community,

religion, school, children, and the likes. This may be thought of in positive terms, but it masks an ugly truth. Although “enslaved African” ranked twentieth in the list, other tragic or violent histories do not come in above the thirtieth place. As Hanna and Hodder (2015) have noted for Virginia, in Texas, too, historical markers prefer not to dwell on narratives of slavery, emancipation, the civil rights movement, raids, massacres, and lynchings. Thus, for example, while the Houston Riot of 1917 is remembered in the “Camp Logan” marker, the event is not considered significant enough to deserve its own marker. To give THC credit, the agency in 2006 created the “Undertold Marker” program to commemorate previously ignored themes (Brinkman 2010). Since then, plenty of markers have been erected to memorialize African Americans’ history, but again in most cases with a narrative that emphasizes outcome rather than process; thus, recent inscriptions celebrate what African Americans have “achieved” as a result of the civil rights movement, but they omit the protests, crackdown, backlash, and often violence that got us there. Given that THC’s “Undertold Markers” have started to shed light on formerly marginalized topics of commemoration, the next critical step is to address the full story by covering both its positives and its negatives. It would be interesting to see if in the future the THC breaks the taboo and expose the shameful atrocities that have often ensanguined the lands of Texas. Only then will the THC’s motto—“Real Places Telling Real Stories”—be fulfilled.

## REFERENCES

- Alderman, D. H. 2000. A street fit for a king: Naming places and commemoration in the American South. *Professional Geographer* 52 (4): 672–84. doi: 10.1111/0033-0124.00256.
- . 2002. Street names as memorial arenas: The reputational politics of commemorating Martin Luther King, Jr. in a Georgia County. *Historical Geography* 30: 99–120.
- . 2012. “History by the spoonful” in North Carolina: The textual politics of state highway historical markers. *Southeastern Geographer* 52 (4): 355–73. doi: 10.1353/sgo.2012.0035.
- Ament, J. 2014. Local historians correct marker mistaking important tribal history. <https://www.kwbu.org/texas-news/2014-10-10/local-historians-correct-marker-mistaking-important-tribal-history#stream/0> (accessed January 11, 2023).
- Anderson, B. 1991. *Imagined communities: Reflections on the origin and spread of nationalism*. 2nd ed. London, UK: Verso.
- Anselin, L. 1995. Local indicators of spatial association—LISA. *Geographical Analysis* 27 (2): 93–115. doi: 10.1111/j.1538-4632.1995.tb00338.x.
- Apel, L. 2014. Stumbling blocks in Germany. *Rethinking History* 18 (2): 181–94. doi: 10.1080/13642529.2013.858448.
- Apperly, E. 2019. ‘Stumbling stones’: A different vision of Holocaust remembrance. In *The Guardian*. <https://www.theguardian.com/cities/2019/feb/18/stumbling-stones-a-different-vision-of-holocaust-remembrance> (accessed January 20, 2023).
- Archdiocese of Seoul. 2023. Seoul Catholic Pilgrimage Route. <https://martyrs.or.kr/en/mpilgrims/about.html> (accessed January 20, 2023).
- Arreola, D. D. 1992. Plaza towns of South Texas. *The Geographical Review* 82 (1): 56–73. doi: 10.2307/215405.
- Awbery, B. D., and C. Dooley. 1992. *Why Stop?: A guide to Texas historical roadside markers*. 3rd ed. Houston, TX: Gulf Publishing Company.
- . 1999. *Why Stop?: A guide to Texas historical roadside markers*. 4th ed. Houston, TX: Lone Star Books.

- . 2005. *Why Stop?: A guide to Texas historical roadside markers*. 5th ed. Lanham, MD: Taylor Trade Publishing.
- Awbery, B. D., and S. Awbery. 2013. *Why Stop?: A guide to Texas roadside historical markers*. 6th ed. Lanham, MD: Taylor Trade Publishing.
- Azaryahu, M. 1990. Renaming the past: Changes in “city-text” in Germany and Austria, 1945–1947. *History and Memory* 2 (2): 32–53.
- . 1996. The power of commemorative street names. *Environment and Planning D: Society and Place* 14: 311–30. doi: 10.1068/d140311.
- Azaryahu, M., and K. E. Foote. 2008. Historical space as narrative medium: On the configuration of spatial narratives of time at historical sites. *GeoJournal* 73: 179–94. doi: 10.1007/s10708-008-9202-4.
- Balossi, G. 2014. *A corpus linguistic approach to literary language and characterization: Virginia Woolf’s The Waves*. Philadelphia, PA: John Benjamins.
- Barker, E. C. 1928. *Mexico and Texas, 1821–1835: University of Texas research letters on the causes of the Texas Revolution*. Dallas, TX: P. L. Turner Company.
- Barr, A. 1988. The semicentennial of Texas Independence in 1886. *The Southwestern Historical Quarterly* 91 (3): 348–59.
- BBC. 2022. London Stolperstein stone: First UK plaque for Holocaust victim unveiled. <https://www.bbc.com/news/uk-england-london-61630165> (accessed January 20, 2023).
- Beeman, C. J., and D. K. Utley. 2008. “A gallant cause:” The formative years of the Texas Historical Commission. *Sound Historian* 11: 24–37.
- Behnken, B. D. 2011. *Fighting their own battles: Mexican Americans, African Americans, and the struggle for Civil Rights in Texas*. Chapel Hill, NC: University of North Carolina Press.
- Benedict, H. Y., and J. A. Lomax. 1916. *The book of Texas*. New York, NY: Doubleday, Page.
- Bennett, C. 2000. Racial categories used in the decennial censuses, 1790 to the present. *Government Information Quarterly* 17 (2): 161–80. doi: 10.1016/S0740-624X(00)00024-1.
- Biesele, R. L. 1987. *The history of German settlements in Texas, 1831–1861*. San Marcos, TX: German-Texan Heritage Society.

- Billig, M. 1995. *Banal nationalism*. Thousand Oaks, CA: SAGE.
- Bills, E. R. 2014. *The 1910 Slocum Massacre: An act of genocide in East Texas*. Charleston, SC: The History Press.
- Blatt, M. 2012. Holocaust memory and Germany. *The Public Historian* 34 (4): 53–66. doi: 10.1525/tph.2012.34.4.53.
- Bodenhamer, D. J. 2015. Narrating space and place. In *Deep maps and spatial narratives*, ed. D. J. Bodenhamer, J. Corrigan, and T. M. Harris, 7–27. Bloomington, IN: Indiana University Press.
- Bodenhamer, D. J., J. Corrigan, and T. M. Harris. 2010. Introduction. In *The spatial humanities: GIS and the future of humanities scholarship*, ed. D. J. Bodenhamer, J. Corrigan, and T. M. Harris, vii–xv. Bloomington, IN: Indiana University Press.
- Bodnar, J. 1992. *Remaking America: Public memory, commemoration, and patriotism in the twentieth century*. Princeton, NJ: Princeton University Press.
- Boswell, A. 2018. *Women in Texas history*. College Station, TX: Texas A&M University Press.
- Brezina, V. 2018. Collocation graphs and networks: Selected applications. In *Lexical collocation analysis: Advances and applications*, ed. Cantos-Gómez, P., and M. Almela-Sánchez, 59–83. Cham, Switzerland: Springer.
- Bright, C. F., K. N. Foster, A. Joyner, and O. Tanny. 2021. Heritage tourism, historic roadside markers and “just representation” in Tennessee, USA. *Journal of Sustainable Tourism* 29 (2–3): 428–47. doi: 10.1080/09669582.2020.1768264.
- Brinkman, B. 2010. Invisible Texans: Seeking minorities in 100 years of Texas Official Historical Markers. *Touchstone* 29: 58–65.
- Brown, T. J. 2019. *Civil War monuments and the militarization of America*. Chapel Hill, NC: The University of North Carolina Press.
- Buenger, W. L., and A. De León. 2011. *Beyond Texas through time: breaking away from past interpretations*. College Station, TX: Texas A&M University Press.
- Burch, A. D. S. 2022. How a national movement toppled hundreds of Confederate symbols. In *The New York Times*. <https://www.nytimes.com/interactive/2022/02/28/us/confederate-statue-removal.html> (accessed September 22, 2022).
- Burrough, B., C. Tomlinson, and J. Stanford. 2021. *Forget the Alamo: The rise and fall of an American myth*. New York, NY: Penguin Books.

- Campbell, R. B. 1989. *An empire for slavery: The peculiar institution in Texas, 1821–1865*. Baton Rouge, LA: Louisiana State University Press.
- . 2003. *Gone to Texas: A history of the Lone Star State*. New York, NY: Oxford University Press.
- Can, T., and H. Cangır. 2022. A warring style: A corpus stylistic analysis of the First World War poetry. *Digital Scholarship in the Humanities* 37 (3): 660–80. doi: 10.1093/llc/fqab047.
- Choi, Y. 2017. An analysis of address system reform in Sadaemunan based on critical toponymy. *Journal of Cultural and Historical Geography* 29 (4): 78–96. doi: 10.29349/JCHG.2017.29.4.78.
- . 2018. Building history database with HGIS: A case study on historical markers in Jongno-gu, Seoul. *Journal of the Korean Geographical Society* 53 (6), 931–60.
- Chow, T. E., Y. Choi, M. Yang, D. Mills, and R. Yue. 2020. Geographic pattern of human mobility and COVID-19 before and after Hubei lockdown. *Annals of GIS* 27 (2): 127–38. doi: 10.1080/19475683.2020.1841828.
- Christian, G. 2005. Confessions of a historical marker junkie. *Touchstone* 24: 64–70.
- Cole, T., and A. Giordano. 2014. Bringing the ghetto to the Jew: Spatialities of ghettoization in Budapest. In *Geographies of the Holocaust*, eds. A. Knowles, T. Cole, and A. Giordano, 121–157. Bloomington, IN: Indiana University Press.
- Collins, L. 2015. How can semantic annotation help us to analyse the discourse of climate change in online user comments? *Linguistik Online* 70 (1): 43–60. doi: 10.13092/lo.70.1743.
- Conzen, K. N., D. A. Gerber, E. Morawska, G. E. Pozzetta, and R. J. Vecoli. 1992. The invention of ethnicity: A perspective from the U.S.A. *Journal of American Ethnic History* 12 (1): 3–41.
- Cook, M., and M. van Riemsdijk. 2014. Agents of memorialization: Gunter Demnig's Stolpersteine and the individual (re-)creation of a Holocaust landscape in Berlin. *Journal of Historical Geography* 43: 138–47. doi: 10.1016/j.jhg.2013.09.001.
- Cope, M., and S. Elwood. 2009. *Qualitative GIS: A mixed methods approach*. Thousand Oaks, CA: SAGE Publications.
- Cosgrove, D., and P. Jackson. 1987. New directions in cultural geography. *Area* 19 (2): 95–101.

- Cox, G., A. Giordano, and M. Juge. 2010. The geography of language shift: A quantitative cemetery study in the Texas Czech community. *Southwestern Geographer* 14: 3-22.
- Deka, M. 2019. The Geography of farmworker health: A mixed-method exploratory analysis of chronic disease. Ph.D. diss., Texas State University.
- Deutschland.de. 2022. 90,000th Stolperstein laid for victims of the National Socialists. <https://www.deutschland.de/en/videos/90000th-stolperstein-laid-for-victims-of-the-national-socialists> (accessed January 20, 2023).
- Dittmer, J. 2010. Textual and discourse analysis. In *The SAGE handbook of qualitative geography*, ed. D. DeLyser, S. Herbert, S. Aitken, M. Crang, and L. McDowell, 274–86. Thousand Oaks, CA: SAGE Publications. doi: 10.4135/9780857021090.n17.
- Donaldson, C., I. N. Gregory, and J. E. Taylor. 2017. Locating the beautiful, picturesque, sublime and majestic: Spatially analysing the application of aesthetic terminology in descriptions of the English Lake District. *Journal of Historical Geography* 56: 43–60. doi: 10.1016/j.jhg.2017. 01.006.
- Dooley, C., and B. Dooley. 1985. *Why Stop?: A guide to Texas historical roadside markers*. 2nd ed. Houston, TX: Lone Star Books.
- Dulaney, W. M. 2020. African Americans. In *Handbook of Texas Online*. <https://www.tshaonline.org/handbook/entries/african-americans> (accessed September 10, 2022).
- Duncan, J. S. 1990. *The city as text: The politics of landscape interpretation in the Kandyian Kingdom*. Cambridge, UK: Cambridge University Press.
- Duncan, J., and N. Duncan. 1988. (Re)reading the landscape. *Environment and Planning D: Society and Space* 6: 117-26. doi: 10.1068/d060117.
- Dwyer, O. J. 2004. Symbolic accretion and commemoration. *Social & Cultural Geography* 5 (3): 419–35. doi: 10.1080/1464936042000252804.
- Dwyer, O. J., and D. H. Alderman. 2008. *Civil rights memorials and the geography of memory*. Chicago, IL: The Center for American Places at Columbia College Chicago.
- Elwood, S. 2010. Mixed methods: Thinking, doing, and asking in multiple ways. In *The SAGE handbook of qualitative geography*, ed. D. DeLyser, S. Herbert, S. Aitken, M. Crang, and L. McDowell, 94–114. Thousand Oaks, CA: SAGE. doi: 10.4135/9780857021090.n7.

- English Heritage. 2023. Blue Plaques. <https://www.english-heritage.org.uk/visit/blue-plaques/> (accessed February 13, 2023).
- Ethington, P. J., and N. Toyosawa. 2015. Inscribing the past: Depth as narrative in historical spacetime. In *Deep maps and spatial narratives*, ed. D. J. Bodenhamer, J. Corrigan, and T. M. Harris, 72–101. Bloomington, IN: Indiana University Press.
- Fehrenbach, T. R. 2000. *Lone star: A history of Texas and the Texans*. 2nd ed. Boulder, CO: Da Capo Press.
- Foote, K. E. 1990. To remember and forget: Archives, memory, and culture. *American Archivist* 53: 378–92. doi: 10.17723/aarc.53.3.d87u013444j3g6r2.
- . 2003. *Shadowed ground: America's landscapes of violence and tragedy*. 2nd ed. Austin, TX: University of Texas Press.
- . 2012. Editing memory and automobility & race: Two learning activities on contested heritage and place. *Southeastern Geographer* 52 (4): 384–97.
- Foote, K. E., A. Tóth, and A. Árvay. 2000. Hungary after 1989: Inscribing a new past on place. *The Geographical Review* 90 (3): 301–34. doi: 10.2307/3250856.
- Foote, K. E., and M. Azaryahu. 2007. Toward a geography of memory: Geographical dimensions of public memory and commemoration. *Journal of Political and Military Sociology* 35 (1): 125–44. doi: 10.2307/45372710.
- Gade, D. W. 2003. Language, identity, and the scriptorial landscape in Québec and Catalonia. *The Geographical Review* 93 (4): 429–48. doi: 10.1111/j.1931-0846.2003.tb00041.x.
- Garrison, G. P. 1903. *Texas: A Contest of Civilizations*. New York, NY: Houghton, Mifflin, and Company.
- Garside, R., and N. Smith. 1997. A hybrid grammatical tagger: CLAWS4. In *Corpus Annotation: Linguistic Information from Computer Text Corpora*, ed. R. Garside, G. Leech, and A. McEnery, 102–21. London, UK: Longman.
- George, C. 2017. Camp Logan marker cleared of graffiti. In *Chron.com*. <https://www.chron.com/news/houston-texas/article/Camp-Logan-marker-cleared-of-graffiti-12221973.php> (accessed December 20, 2022).
- Gillis, J. R. 1994. *Commemorations: The politics of national identity*. Princeton, NJ: Princeton University Press.

- Giordano, A. 2019. GIS&T and the Digital Humanities. In *The Geographic Information Science & Technology Body of Knowledge*. <https://gistbok.ucgis.org/bok-topics/gist-and-digital-humanities> (accessed December 24, 2022).
- Giordano, A., and A. Holian. 2014. Retracing the “Hunt for Jews”: A spatio-temporal analysis of arrests during the Holocaust in Italy. In *Geographies of the Holocaust*, ed. A. Knowles, T. Cole, and A. Giordano, 52–86. Bloomington, IN: Indiana University Press.
- Giordano, A., and T. Cole. 2018. The limits of GIS: Towards a GIS of place. *Transactions in GIS* 22: 664–76. doi: 10.1111/tgis.12342.
- Goldberg, D. W. 2011. Advances in geocoding research and practice. *Transactions in GIS* 15 (6): 727–33.
- Gould, M. R., and R. E. Silverman. 2003. Stumbling upon history: Collective memory and the urban landscape. *GeoJournal* 78: 791–801. doi: 10.1007/s10708-012-9466-6.
- Grieve, J. 2012. A statistical analysis of regional variation in adverb position in a corpus of written Standard American English. *Corpus Linguistics and Linguistic Theory* 8 (1): 39–72. doi: 10.1515/cllt-2012-0003.
- Hanna, S. P., and E. F. Hodder. 2015. Reading the signs: Using a qualitative geographic information system to examine the commemoration of slavery and emancipation on historical markers in Fredericksburg, Virginia. *Cultural Geographies* 22 (3): 509–29. doi: 10.1177/1474474014548161.
- Harjes, A. 2005. Stumbling stones: Holocaust memorials, national identity, and democratic inclusion in Berlin. *German Politics and Society* 74 (23): 138–51.
- Harris, C. 2010. German memory of the Holocaust: The emergence of counter-memorials. *Penn History Review* 17 (2) 34–59.
- Harris, T. M. 2015. Deep geography—deep mapping: Spatial storytelling and a sense of place. In *Deep maps and spatial narratives*, ed. D. J. Bodenhamer, J. Corrigan, and T. M. Harris, 28–53. Bloomington, IN: Indiana University Press.
- Hobsbawm, E. J., and T. Ranger. 1983. *The invention of tradition*. Cambridge, UK: Cambridge University Press.
- Hoelscher, S., and D. H. Alderman. 2004. Memory and place: Geographies of a critical relationship. *Social & Cultural Geography* 5 (3): 347–55.

- Humes, K., and H. Hogan. 2009. Measurement of race and ethnicity in a changing, multicultural America. *Race and Social Problems* 1 (3): 111–31. doi: 10.1007/s12552-009-9011-5.
- Huyssen, A. 2003. *Present past: Urban palimpsests and the politics of memory*. Stanford, CA: Stanford University Press.
- Jackson, P. 1989. *Maps of meaning: An introduction to cultural geography*. New York, NY: Routledge.
- Johnson, N. 1995. Cast in stone: Monuments, geography, and nationalism. *Environment and Planning D: Society and Space* 13: 51–65. doi: 10.1068/d130051.
- Jones, J. B. 1988. An analysis of national register listings and roadside historic markers in Tennessee: A study of two public history programs. *The Public Historian* 10 (3): 19–30. doi: 10.2307/3378527.
- Jongno-gu. 2023. About Jongno: History. <https://www.jongno.go.kr/English.do?menuId=6100&menuNo=6100> (accessed January 20, 2023).
- Jordan, J. A. 2006. *Structures of memory: Understanding urban change in Berlin and beyond*. Stanford, CA: Stanford University Press.
- Jordan, T. G. 1986. A century and a half of ethnic change in Texas, 1836–1986. *The Southwestern Historical Quarterly* 89 (4): 385–422.
- Knowles, A. K. 2002. *Past time, past place: GIS for history*. Redlands, CA: ESRI Press.
- . 2008. *Placing history: How maps, spatial data, and GIS are changing historical scholarship*. Redlands, CA: ESRI Press.
- Knowles, A. K., P. B. Jaskot, T. Cole, and A. Giordano. 2020. Mind the gap: Reading across the Holocaust Testimonial Archive. In *The Holocaust in the twenty-first century: Relevance and challenges in the digital age*, 216–41. Evanston, IL: Northwestern University Press.
- Kownslar, A. O. 2004. *The European Texans*. College Station, TX: Texas A&M University Press.
- Kulldorff, M. 1997. A spatial scan statistic. *Communications in Statistics: Theory and Methods* 26 (6): 1481–96. doi: 10.1080/03610929708831995.
- Kulldorff, M., R. Heffernan, J. Hartman, R. Assunção, and F. Mostashari. 2005. A space-time permutation scan statistic for disease outbreak detection. *PLoS Medicine* 2 (3): 216–24. doi: 10.1371/journal.pmed.0020059.

- Kwan, M. P. 2002. Feminist visualization: Re-envisioning GIS as a method in feminist geographic research. *Annals of the Association of American Geographers* 92 (4): 645–61. doi: 10.1111/1467-8306.00309.
- Kwan, M. P., and G. Ding. 2008. Geo-narrative: Extending Geographic information systems for narrative analysis in qualitative and mixed-method research. *The Professional Geographer* 60 (4): 443–65. doi: 10.1080/00330120802211752.
- Langran, G. 1992. *Time in Geographic information systems*. Bristol, PA: Taylor & Francis.
- Levinson, S. 2018. *Written in stone: Public monuments in changing societies*. Durham, NC: Duke University Press.
- Light, D., and C. Young. 2015. Toponymy as commodity: Exploring the economic dimensions of urban place names. *International Journal of Urban and Regional Research* 39 (3): 435–50. doi: 10.1111/1468-2427.12153.
- Loewen, J. W. 2019. *Lies across America: What our historic sites get wrong*. 2nd ed. New York, NY: The New Press.
- López-Rodríguez, C. I. 2022. Emotion at the end of life: Semantic annotation and key domains in a pilot study audiovisual corpus. *Lingua* 277: 1–21. doi: 10.1016/j.lingua.2022.103401.
- Lowenthal, D. 1975. Past time, present place: Landscape and memory. *The Geographical Review* 65 (1): 1–36. doi: 10.2307/213831.
- . 1994. Identity, heritage, and history. In *Commemorations: The politics of national identity*, ed. J. R. Gillis, 14–57. Princeton, NJ: Princeton University Press.
- . 2015. *The past is a foreign country: Revisited*. Cambridge, UK: Cambridge University Press.
- Marten, J. 1990. *Texas divided: Loyalty & dissent in the Lone Star State 1856–1874*. Lexington, KY: University Press of Kentucky.
- Martin, B. L. 1991. From Negro to Black to African American: The power of names and naming. *Political Science Quarterly* 106 (1): 83–107. doi: 10.2307/2152175.
- Mask, D. 2020. *The address book: What street addresses reveal about identity, race, wealth, and power*. New York, NY: St. Martin's Press.
- McComb, D. G. 2015. *The city in Texas: A history*. Austin, TX: University of Texas Press.

- McEnery, T., and A. Hardie. 2012. *Corpus linguistics: Method, theory, and practice*. Cambridge, UK: Cambridge University Press.
- McMichael, K. 2009. *Sacred memories: The Civil War monument movement in Texas*. Denton, TX: Texas State Historical Association.
- Meinig, D. W. 1969. *Imperial Texas: An interpretive essay in cultural geography*. Austin, TX: University of Texas Press.
- Miranker, M., and A. Giordano. 2020. Text mining and semantic triples: Spatial analyses of text in applied humanitarian forensic research. *Digital Geography and Society* 1: 1–10. doi: 10.1016/j.diggeo.2020.100005.
- Moran, P. A. P. 1950. Notes on Continuous Stochastic Phenomena. *Biometrika* 37 (1): 17–23. doi: 10.2307/2332142.
- Murrieta-Flores, P., A. Baron, I. Gregory, A. Hardie, and P. Rayson. 2015. Automatically analyzing large texts in a GIS environment: The registrar general’s report and cholera in the 19th century. *Transactions in GIS* 19 (2): 296–320. doi: 10.1111/tgis.12106.
- National Historical Commission of the Philippines. 2023. NHCP Guidelines. <https://nhcp.gov.ph/resource/guidelines/nhcp-guidelines/> (accessed February 13, 2023).
- O’Sullivan, D., and D. J. Unwin. 2010. *Geographic Information Analysis*. 2nd ed. Hoboken, NJ: John Wiley & Sons.
- Otterstrom, S. M., and J. A. Davis. 2016. The uneven landscape of California’s historical landmarks. *Geographical Review* 106 (1): 28–53. doi: 10.1111/j.1931-0846.2015.12133.x.
- . 2020. Historical markers in the western United States: Regional and cultural contrasts. *Journal of Heritage Tourism* 15 (5): 533–53. doi: 10.1080/1743873X.2019.1695804.
- Pappalardo, J. 2017. No one around to foot the bill when vandals target Texas’ historical markers. In *Dallas Observer*. <https://www.dallasobserver.com/news/no-one-around-to-foot-the-bill-when-vandals-target-texas-historical-markers-9238746> (accessed January 20, 2023).
- Park, K.-Y. 1991. *Seoul Munhwayujeok Gochal* (Study of cultural remains of Seoul). *The Hyangto Seoul: Journal of the city history compilation committee of Seoul* 50: 339–408.

- Pavlovskaya, M. 2006. Theorizing with GIS: A tool for critical geographies? *Environment and Planning A* 38: 2003–20. doi: 10.1068/a37326.
- Pietraszewska, N. 2013. A qualitative and quantitative analysis of selected ethnic and racial terminology present in assorted public English corpora. *Styles of Communication* 5 (1): 117–33.
- Poole, R. 2018. Ecolinguistics, GIS, and corpus linguistics for the analysis of the Rosemont Copper Mine debate. *Environmental Communication* 12 (4): 525–40. doi: 10.1080/17524032.2016.1275735.
- Post, C. 2009. Reputational politics and the symbolic accretion of John Brown in Kansas. *Historical Geography* 37: 92–113.
- Poyo, G. E., and G. M. Hinojosa. 1988. Spanish Texas and borderlands historiography in transition: Implications for United States history. *The Journal of American History* 75 (2): 393–416. doi: 10.2307/1887864.
- Prentice, S. 2010. Using automated semantic tagging in Critical Discourse Analysis: A case study on Scottish independence from a Scottish nationalist perspective. *Discourse & Society* 21 (4): 405–37. doi: 10.1177/0957926510366198.
- Rayson, P. 2003. Matrix: A statistical method and software tool for linguistic analysis through corpus comparison. Ph.D. diss., Lancaster University.
- . 2008. From key words to key semantic domains. *International Journal of Corpus Linguistics* 13 (4): 519–49.
- Roland, N. 2018. Empire on parade: Public representations of race at the 1936 Texas Centennial Exposition. In *Reassessing the 1930s South*, ed. K. L. Cox and S. E. Gardner, 210–27. Baton Rouge, LA: Louisiana State University Press.
- Rose-Redwood, R. S. 2008. From number to name: Symbolic capital, places of memory and the politics of street renaming in New York City. *Social & Cultural Geography* 9 (4): 431–52. doi: 10.1080/14649360802032702.
- Rose-Redwood, R., D. Alderman, and M. Azaryahu. 2010. Geographies of toponymic inscription: New directions in critical place-name studies. *Progress in Human Geography* 34 (4): 453–70. doi: 10.1177/0309132509351042.
- Ryan, M.-L., K. Foote, and M. Azaryahu. 2016. *Narrating space/spatializing narrative: Where narrative theory and geography meet*. Columbus, OH: The Ohio State University Press.
- Salazar, J. 2021. *Mutiny of rage: 1917 Camp Logan Riots and Buffalo Soldiers in Houston*. Lanham, MD: Prometheus.

- Savage, K. 1994. The politics of memory: Black emancipation and the Civil War monument. In *Commemorations: The politics of national identity*, ed. J. R. Gillis, 127–49. Princeton, NJ: Princeton University Press.
- Schein, R. H. 1997. The place of landscape: A conceptual framework for interpreting an American scene. *Annals of the Association of American Geographers* 87 (4): 660–680.
- Schoen, H. 1938. *Monuments erected by the State of Texas to commemorate the centenary of Texas Independence: The report of the Commission of Control for Texas Centennial Celebrations*. Austin, TX: The Steck Company.
- Silverman, B. W. 1986. *Density estimation for statistics and data analysis*. New York, NY: Chapman and Hall.
- Smith, C. 2022. Monuments to the unthinkable. *The Atlantic* December 2022: 22–41.
- Smith, J. M. 2017. Text and textuality. In *The international encyclopedia of geography*, ed. D. Richardson, N. Castree, M. F. Goodchild, A. Kobayashi, W. Liu, and R. A. Marston. Hoboken, NJ: John Wiley & Sons. doi: 10.1002/9781118786352.wbieg0075.
- Sowell, A. J. 1900. *Early settlers and Indian fighters of Southwest Texas*. Austin, TX: Ben C. Jones & Co., Printers.
- Stubbs, M. 1995. Collocations and semantic profiles: On the cause of the trouble with quantitative studies. *Functions of Language* 2 (1): 23-55. doi: 10.1075/fol.2.1.03stu.
- Sutherland, C. 2005. Nation-building through discourse theory. *Nations and Nationalism* 11 (2): 185–202. doi: 10.1111/j.1354-5078.2005.00199.x.
- Swanson, D. J. 2020. *Cult of glory: The bold and brutal history of the Texas Rangers*. New York, NY: Viking.
- Texas Historical Commission. 2009. Texas centennial marker policies. <https://www.thc.texas.gov/preserve/projects-and-programs/state-historical-markers/1936-texas-centennial-markers> (accessed September 22, 2022).
- . 2011. A modern perspective: Viewing Texas’ centennial attractions through a 75-year-old lens. *The Medallion* July/August: 12–5.
- Texas Secretary of State. 2023. Texas Administrative Code. [https://texreg.sos.state.tx.us/public/readtac\\$ext.viewtac](https://texreg.sos.state.tx.us/public/readtac$ext.viewtac) (accessed February 13, 2023).

- Texas State Historical Association. 2022a. World War II internment camps. In Handbook of Texas Online. <https://www.tshaonline.org/handbook/entries/world-war-ii-internment-camps> (accessed February 8, 2023).
- . 2022b. Texas Centennial. In *Handbook of Texas Online*. <https://www.tshaonline.org/handbook/entries/texas-centennial> (accessed December 20, 2022).
- Till, K. E. 2005. *The new Berlin: Memory, politics, place*. Minneapolis, MN: University of Minnesota Press.
- Torget, A. J. 2015. *Seeds of empire: Cotton, slavery, and the transformation of the Texas borderlands, 1800–1850*. Chapel Hill, NC: University of North Carolina Press.
- Turnbull, B. W., E. J. Iwano, W. S. Burnett, H. L. Howe, and L. C. Clark. 1989. Monitoring for clusters of disease: Application to leukemia incidence in Upstate New York. *American Journal of Epidemiology* 132: 136–43.
- Travis, C. 2015. *Abstract machines: Humanities GIS*. Redlands, CA: Esri Press.
- Tretter, E. M. 2011. The power of naming: The toponymic geographies of commemorated African-Americans. *The Professional Geographer* 63 (1): 34–54. doi: 10.1080/00330124.2010.537936.
- United States Census Bureau. 2022. Explore Census Data. <https://data.census.gov/cedsci/> (accessed March 4, 2022).
- United States Congress. 1959. Muffle drums: Last of the boys in gray was never in war. *Congressional Record* 105 (26): A7835. Washington, DC: United States Government Printing Office.
- Utley, D. K., and C. J. Beeman. 2013. *History along the way: Stories beyond the Texas Roadside Markers*. College Station, TX: Texas A&M University Press.
- Veselka, R. E. 2000. *The courthouse square in Texas*, ed. K. E. Foote. Austin, TX: University of Texas Press.
- von Henneberg, K. 2004. Monuments, public space, and the memory of empire in modern Italy. *History & Memory: Studies in representation of the past* 16 (1): 37–49.
- Vrana, R. 1989. Historical data as an explicit component of land information systems. *International Journal of Geographic Information Systems* 3 (1): 33–49. doi: 10.1080/02693798908941494.

- Wang, F., J. Hartmann, W. Luo, and P. Huang. 2006. GIS-based spatial analysis of Tai place names in southern China: An exploratory study of methodology. *Geographic Information Sciences* 12 (1): 1–9. doi: 10.1080/10824000609480611.
- Watts, P. R. 2010. Mapping narratives: The 1992 Los Angeles riots as a case study for narrative-based geovisualization. *Journal of Cultural Geography* 27 (2): 203–27. doi: 10.1080/08873631.2010.494401.
- Webb, W. P. 2008. *The Texas Rangers: A century of frontier defense*. 2nd ed. 2008. Austin, TX: University of Texas Press.
- Yeoh, B. S. A. 1996. Street-naming and nation-building: Toponymic inscriptions of nationhood in Singapore. *Area* 28 (3): 298–307.
- Yin, P. 2020. Kernels and density estimation. In *The Geographic Information Science & Technology Body of Knowledge*. <http://gistbok.ucgis.org/bok-topics/kernels-and-density-estimation> (accessed November 7, 2022).