Introduction

In recent years, the rise of digital dating platforms and shifting patterns of queer social life have contributed to the steady decline of lesbian bars. These spaces, once central to lesbian community and culture, now face growing challenges to their survival. Many have responded by broadening their appeal, expanding their clientele to include all queer people or all women more generally, in an effort to remain financially viable. While often presented as inclusive, these changes have been criticized for weakening lesbian cultural identity and diminishing the cultural significance of lesbian-specific spaces.

In response to these changes, this project asks: *How do differences in cultural orientation and adaptive responsiveness affect perceptions of inclusion, patterns of exit, and the long-term identity of lesbian spaces?*

To address this broader question, the study examines the following sub-questions:

1. How do individuals with different identity positions (queer women, non-queer women, and queer non-women) respond to varying bar strategies?

2. How do bar-level strategies shape the demographic and cultural composition of a space over time? In particular, under what conditions does a bar sustain a lesbian-majority identity?

3. Does greater adaptability in bar-level inclusion policies foster broader inclusion or contribute to cultural dilution?

Literature Review

Lesbian bars have historically operated as culturally bounded spaces, often excluding non-women and non-lesbian patrons in order to foster safety, intimacy, and political solidarity among queer women. In recent years, however, economic pressures and

shifting cultural norms have prompted many of these spaces to adopt more inclusive strategies. Two dominant approaches have emerged: some bars have reoriented themselves as **woman-centered**, expanding access to all women regardless of sexual identity; others have moved toward a **queer-centered** model, welcoming a broader range of queer patrons, including queer non-women.

While these strategies aim to promote financial sustainability and inclusion, they have also raised concerns about the erosion of lesbian-specific cultural identity. Mattson (2023) documents how many lesbian bars have rebranded under financial pressure, prompting some patrons to express discomfort with the loss of distinctly lesbian space. Podmore (2006) analyzes similar shifts in Montreal, where formerly women-only venues transitioned into mixed-gender environments, increasing access while diminishing lesbian visibility and cohesion. Browne (2021) critiques the broader trend of folding "lesbian" into a generalized LGBTQ+ framework, arguing that this may obscure lesbian spatial and political identities altogether. **These accounts directly inform the first focus of this project: how bar-level cultural strategies, specifically woman-centered versus queer-centered orientations, shape a venue's ability to maintain a recognizable lesbian identity over time.**

However, inclusion policies alone do not determine how individuals relate to space. Patrons do not passively accept a venue's stated identity; they actively evaluate whether they feel a sense of fit. Held (2009) shows that individuals from different identity positions may interpret the same space in divergent ways. Even in formally inclusive settings, some may feel unwelcome, disconnected, or misaligned with prevailing cultural norms. In this sense, belonging is not only about access, but about perceived alignment with the space's atmosphere and dominant social codes. **This insight informs the model's second component: the simulation of bar selection and withdrawal based on individualized belonging thresholds.**

Belonging is also affective and iterative. Drysdale, Robinson, and Gorman-Murray (2024) argue that contemporary lesbian nightlife is shaped less by fixed locations than by emotionally resonant, mobile scenes. Belonging emerges through recurring interactions,

memory, and atmosphere—what they term *affective spatialities*—rather than through static identity categories. This perspective supports the model's treatment of belonging as a recursive, memory-based process rather than a binary state.

While these literatures offer detailed accounts of how individuals interpret and navigate lesbian space, it remains focused primarily on the micro-level: on personal perceptions, identity negotiations, and localized experiences of inclusion and exclusion. They offer limited tools for analyzing how such individual decisions accumulate over time or how they contribute to broader changes in the cultural identity of a space.

To address this gap, the project employs an agent-based model that simulates how patterns of bar selection, withdrawal, and belonging evolve under different institutional strategies. By modeling feedback loops between individuals and bar-level culture, the simulation provides a structural and process-based account of how lesbian spaces either retain, transform, or lose their identity.

Model Overview

At the core of this model is a recursive social mechanism that links individual perceptions of belonging to the evolving cultural identity of a space. Agents make decisions about which bar to attend or whether to withdraw based on their subjective sense of fit. This assessment depends both on the bar's stated inclusion strategy and on the recent composition of its visitors. These micro-level choices, repeated across time, gradually reshape the demographic and cultural makeup of each space. As the composition changes, it affects how future agents interpret the space, either reinforcing its original orientation or causing it to shift. Through this feedback loop, the model captures how spaces intended to be inclusive may unintentionally transform— maintaining a lesbian-specific identity when belonging remains concentrated among queer women, or drifting toward generality when perceived belonging becomes uneven across groups.

Model Components

1. Customer Agents

Customer agents represent individual patrons who differ in identity, sensitivity to exclusion, and their accumulated experiences of belonging within specific spaces. Each agent is assigned to one of three identity categories:

- QW: Queer women

- NQW: Non-queer women

- QNW: Queer non-women

These categories determine how agents are received by each bar, based on group-specific affinity values, and how they perceive the venue's social composition.

Each agent is also initialized with three psychological attributes:

- **A belonging threshold,** which defines the minimum perceived level of cultural fit required for the agent to enter a bar. This value is normally distributed for all individuals, with the given set value as the mean.

- **A memory system**, which stores the agent's belonging scores from the previous five rounds for each bar. This allows agents to detect trends in their own experiences and adjust behavior accordingly. Although thresholds remain fixed, agents make decisions based on their cumulative history.

- An **intergroup preference profile**, which reflects the agent's disposition toward other identity groups. These preferences are shaped by cultural and identity-based orientations and are encoded in a matrix specifying how much each group values co-presence with others. Preferences may be asymmetric: for example, queer women (QW) may experience discomfort in spaces with a high proportion of queer non-women (QNW), even if the reverse is not true. This value is normally distributed for all individuals, with the given set value as the mean.

At any point in the simulation, agents can be in one of three states:

- **Active**: participating in bar selection and attendance

- **Temporarily exited**: withdrawn due to unmet belonging conditions, with the potential to return in ten rounds

- **Permanently exited**: removed from the simulation after 3-time repeated unsuccessful attempts to find a bar that meets their threshold

2. Bar Agents

Each bar agent represents a physical venue with a predefined cultural orientation, expressed through its affinity profile toward three identity groups: queer women (QW), non-queer women (NQW), and queer non-women (QNW).

The model includes two types of bars:

- A **woman-centered** bar assigns the highest baseline affinity to QW, moderate affinity to NQW, and lower affinity to QNW. This strategy prioritizes shared gender and sexual identity.

- A **queer-centered** bar also assigns highest affinity to QW but allocates moderate affinity to QNW and lower affinity to NQW. While still centering QW to some degree, this strategy adopts a broader orientation, expanding receptiveness to a wider range of queer identities and partially shifting away from lesbian-specific exclusivity.

Beyond these fixed baseline affinities, each bar includes an **adaptive affinity mechanism**. At fixed intervals, bars update their affinity values for each group in proportion to their recent presence. This models how cultural alignment evolves not through formal policy changes, but through the cumulative effects of attendance patterns over time.

Bars also maintain **a symbolic identity status**, which reflects whether the space is culturally recognized as a lesbian venue. A bar retains this status as long as queer women maintain a consistent presence. However, if the proportion of QW among bar participants falls below a specified threshold for ten consecutive rounds, the bar is reclassified as no longer holding lesbian cultural identity. This reclassification is irreversible within the simulation, reflecting the idea that symbolic belonging, once lost through sustained disengagement, is difficult to recover. This mechanism captures how the meaning of a space is not only defined by intent or policy, but by the continued presence and participation of those it purports to center.

3. Agent Action Logic

The simulation progresses in discrete time steps. At each step, all agents follow a three-phase decision process that governs their interaction with the bar environment and drives the emergence of system-level cultural patterns.

3.1 Evaluation

Each agent calculates a belonging score for both bars based on two factors:

- The bar's current affinity toward the agent's identity group, representing the structural inclusiveness of the space

- The proportion of the agent's identity group among the bar's visitors in this round, reflecting the perceived social atmosphere

These components are combined using a weighted average. The relative influence of structural affinity and group composition is controlled by a global parameter, alpha, which determines how much agents prioritize explicit inclusion signals versus peer presence when assessing cultural fit.

3.2 Decision

If both bars produce belonging scores above the agent's threshold, the agent selects between them probabilistically. The likelihood of choosing a given bar is proportional to its relative score, introducing behavioral variability and reflecting the non-deterministic nature of spatial decision-making.

If only one bar exceeds the threshold, the agent enters that bar. If neither does, the agent temporarily withdraws from the system for a fixed number of steps. Agents who experience repeated instances of non-fit eventually transition to permanent exit, representing long-term disengagement from the bar environment.

3.3 Participation and Feedback

Agents who enter a bar contribute to its current group composition, which in turn affects how the bar is perceived by other agents in subsequent rounds. Each agent's belonging score is recorded in memory, informing future decisions.

Bars update their adaptive affinity values at fixed intervals based on the recent composition of their patrons. This gradual updating process reflects the delayed and cumulative nature of institutional responses to social change.

4. Bar Adaptation Logic

In addition to their fixed inclusion strategies, bar agents implement a dynamic mechanism of adaptive affinity, allowing them to gradually adjust their cultural orientation based on the identities of recent participants. This models how real-world venues evolve not through formal policy changes, but through subtle shifts in atmosphere and cultural signaling shaped by attendance patterns.

Each bar tracks the composition of its recent visitors and periodically updates its affinity values for each identity group. The timing of these updates is controlled by the parameter *adaptive_update_interval*, which determines how frequently bars incorporate social feedback. At each scheduled interval, the bar calculates the average proportion of each group among recent attendees. These proportions are scaled by a global

affinity_factor and added to the fixed baseline affinities, producing an updated effective affinity profile used in subsequent belonging evaluations.

This process enables bars to gradually become more favorable toward groups that are consistently present and less favorable toward those who are absent, regardless of their original design. The mechanism is gradual, cumulative, and asymmetric, with two key implications:

- **Inertia and feedback**: Bars cannot shift strategies instantaneously. Cultural adjustment occurs slowly and is grounded in observed behavior rather than explicit intention. This allows bars to diverge from their initial orientation over time without formally redefining themselves.

- **Path dependence**: Early patterns of attendance can produce long-term effects. A woman-centered bar may gradually shift toward favoring queer non-women if their participation remains more consistent than that of queer women. Conversely, a queer-centered bar that predominantly attracts queer women may, over time, realign with a lesbian-specific identity, even without any change to its stated inclusion policy.

Through this mechanism, the model captures how institutional identity evolves through social feedback rather than top-down decision-making. It provides a formal means of simulating how repeated patterns of attendance shape the long-term cultural trajectory of shared spaces.

Expected Results

Based on the model design, three core hypotheses are proposed:
First, queer-centered bars are expected to undergo de-lesbianization more quickly than woman-centered bars due to broader initial inclusion and increased likelihood of cultural misfit for queer women.
Second, higher adaptation frequency is expected to accelerate cultural dilution, as rapid

updates reinforce short-term fluctuations and reduce the stability of lesbian identity. Third, de-lesbianization is predicted to emerge through cumulative disengagement, not formal exclusion, as individual withdrawal and adaptive feedback reshape space over time.

To test these expectations, the model will systematically vary two parameters: **bar strategy type** (woman-centered vs. queer-centered) and **adaptation frequency** (the number of rounds between affinity updates). For each configuration, multiple simulation runs will be conducted.

The following outputs will be collected to evaluate outcomes:

- The proportion of queer women (QW) among bar participants over time

- The effective affinity toward QW in each bar at each round

- The symbolic identity status of each bar (whether it remains classified as a lesbian space)

Together, these factors will allow the model to assess when and how de-lesbianization occurs, and how different institutional strategies influence the pace and nature of cultural transformation.

Reference

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