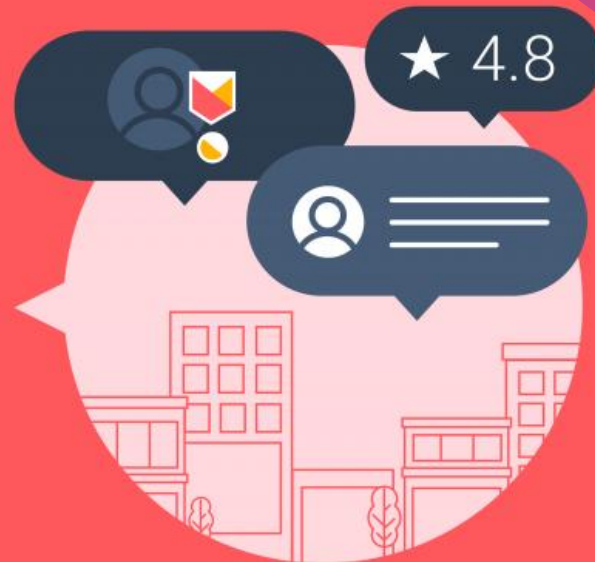# KEEPING YOUR RENTERS HAPPY: AN ANALYSIS OF AIRBNB RATINGS & REVIEWS

ERIC NGO & KAYLEE TRINH

MAY 05, 2024

QUESTIONS OF INTEREST

- What influences the ratings & reviews of customers on Airbnb?

- What do they talk about when reviewing an Airbnb property?

- How do these patterns differ across cities?

DATA DESCRIPTION

- 2 listing details & reviews datasets: Bangkok & San Francisco

- ~250,000 and ~350,000 reviews in each dataset

- 20 variables included, mainly focus on: host info, host info sentiment, host experience, super host, neighborhood description sentiment, price, number of reviews

SENTIMENT TRENDS
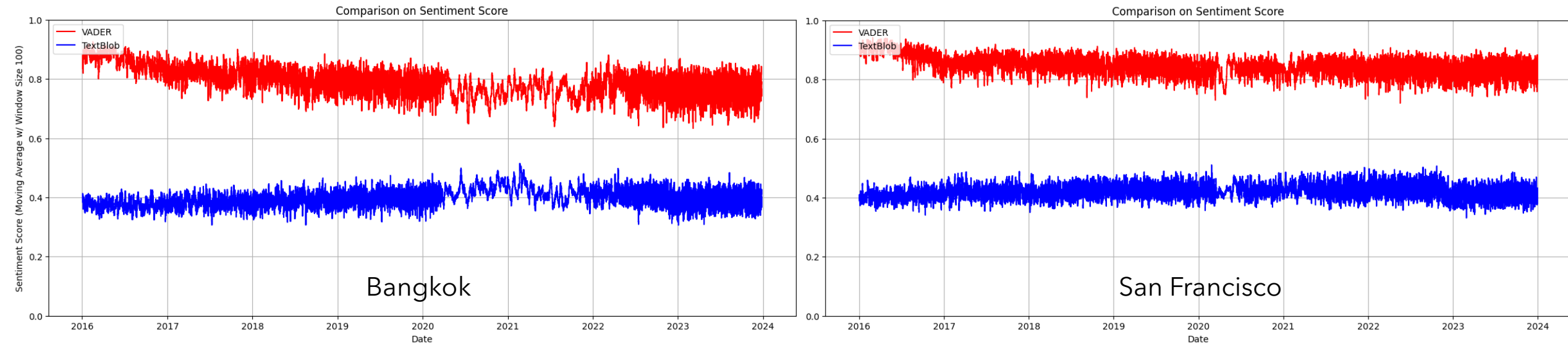
- Relatively similar trends across 2 cities

- SF generally higher (always above 0.8), while BK's overall sentiment gradually decrease (to 0.7)

- During 2 COVID years (2020 – 2022), the trend lines are thinner for BK, but less so for SF

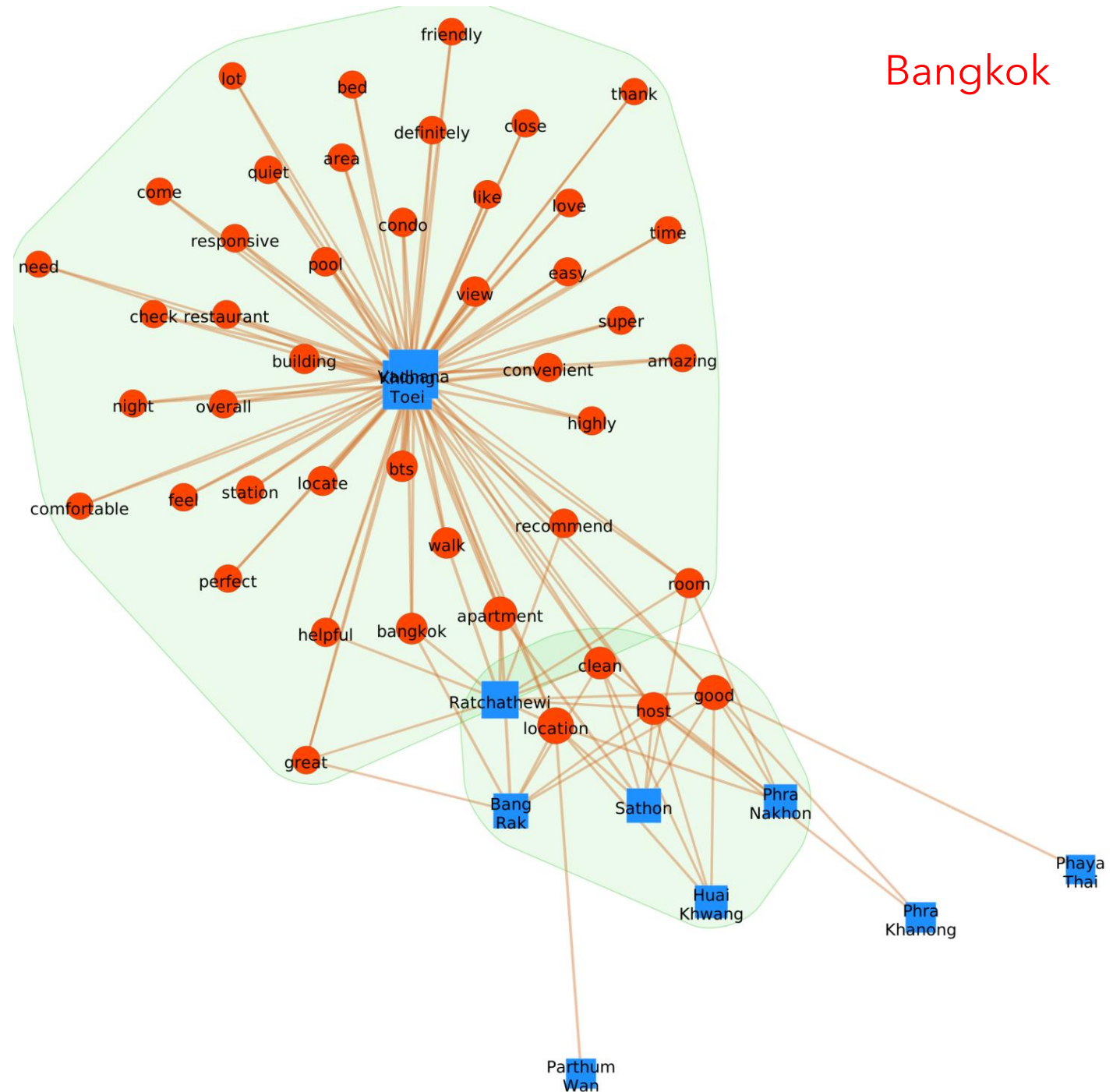# COMMON TOPICS: WORD CLOUDS

Bangkok

San Francisco

- Similar trends for both Bangkok & SF.

- Unsurprising: Guests everywhere would prefer places that are clean, nice hosts, and at good locations.
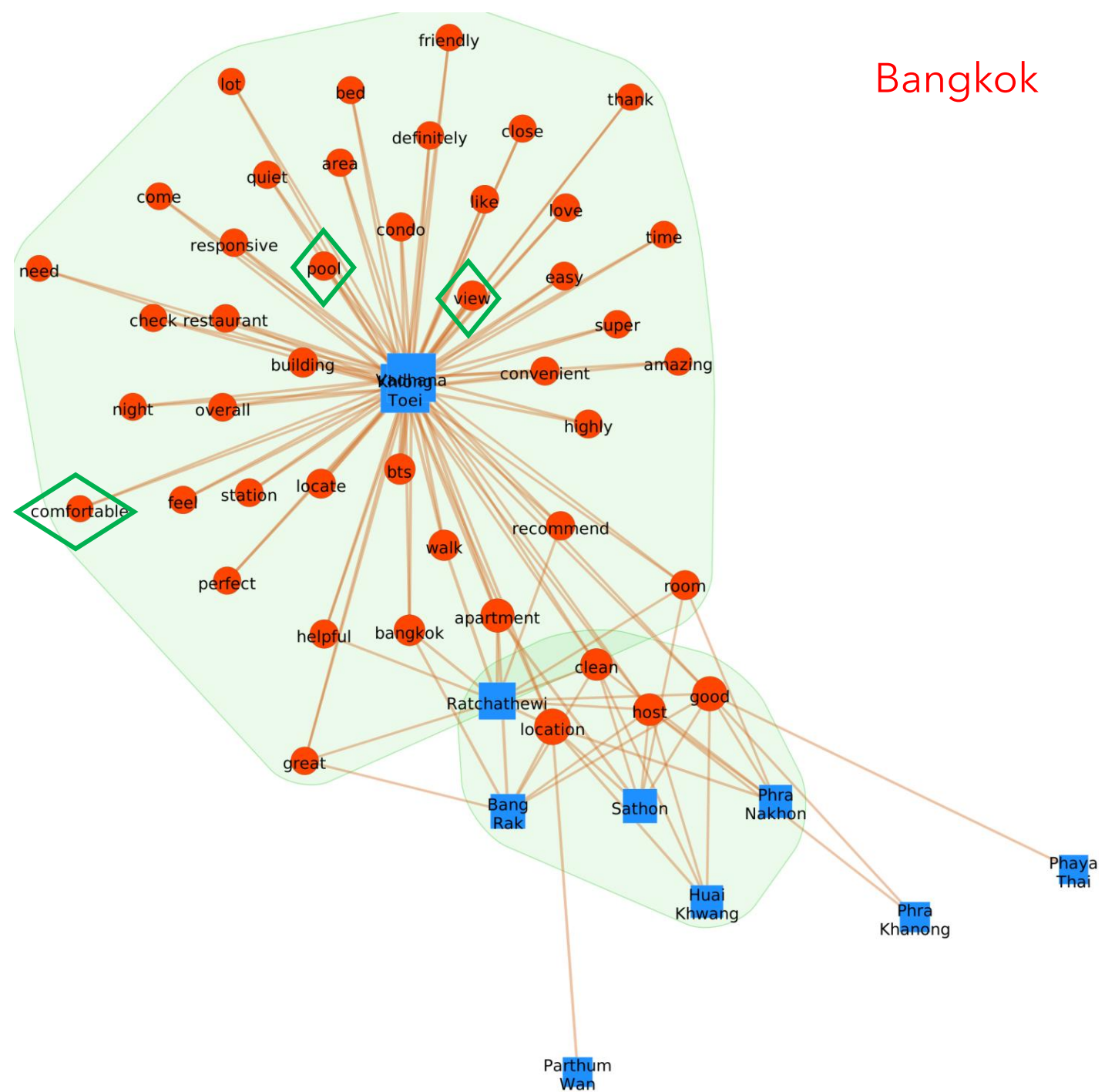
COMMON TOPICS IN REVIEWS

TOPICS BY NEIGHBORHOOD: TEXT NETWORK

- 3 Main Clusters.

- Central Neighborhood: Vadhana & Khlong Toei
  - Airbnbs have good locations, many amenities, & great hosts
    - Pools, view, comfortable
    - Restaurants, stations
    - Responsive, helpful, friendly
  - Most loved
    - Love, perfect, amazing, super

- Good Neighborhoods: 4 Districts
  - Location, clean, good host
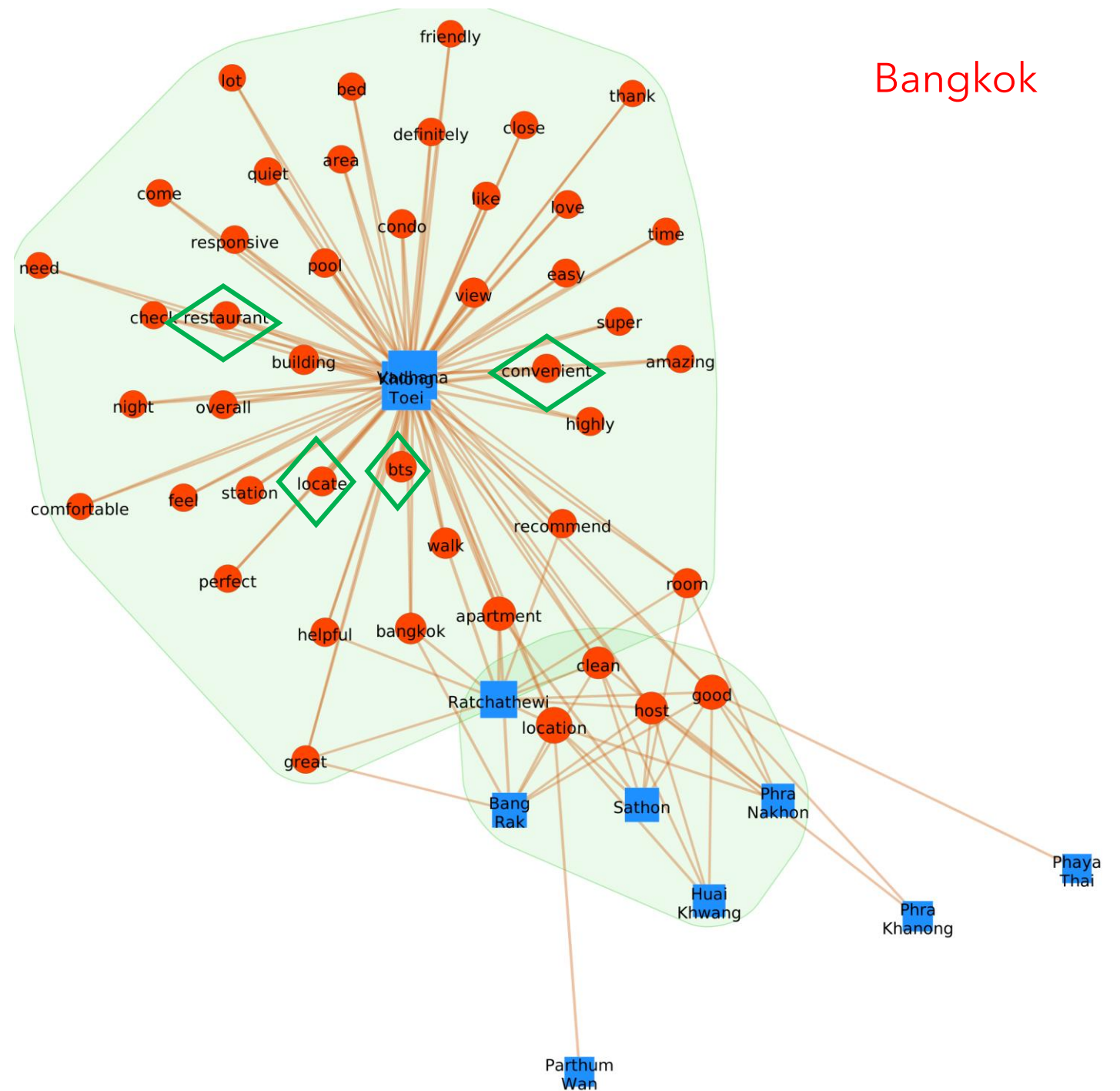
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Bangkok

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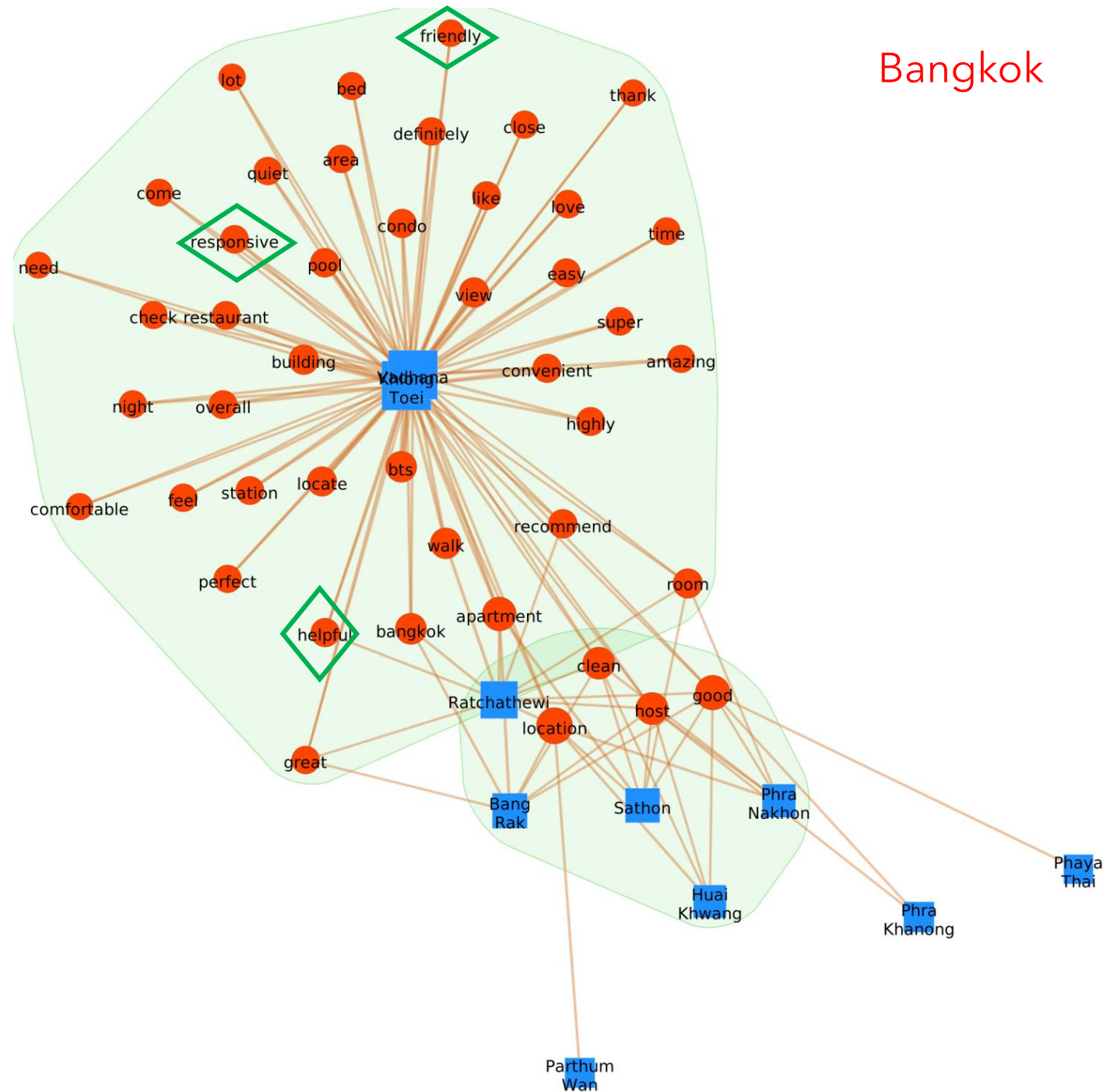
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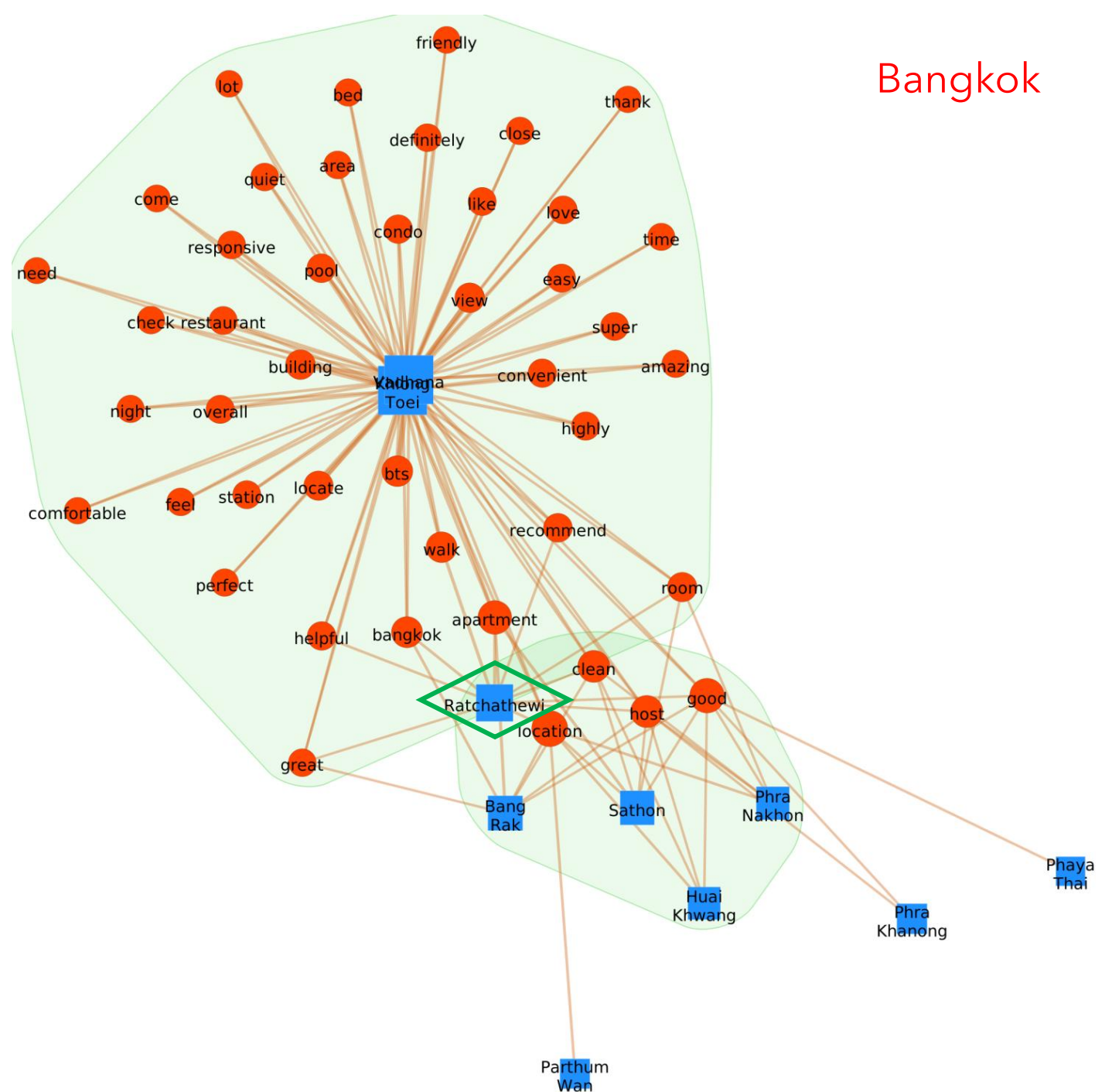
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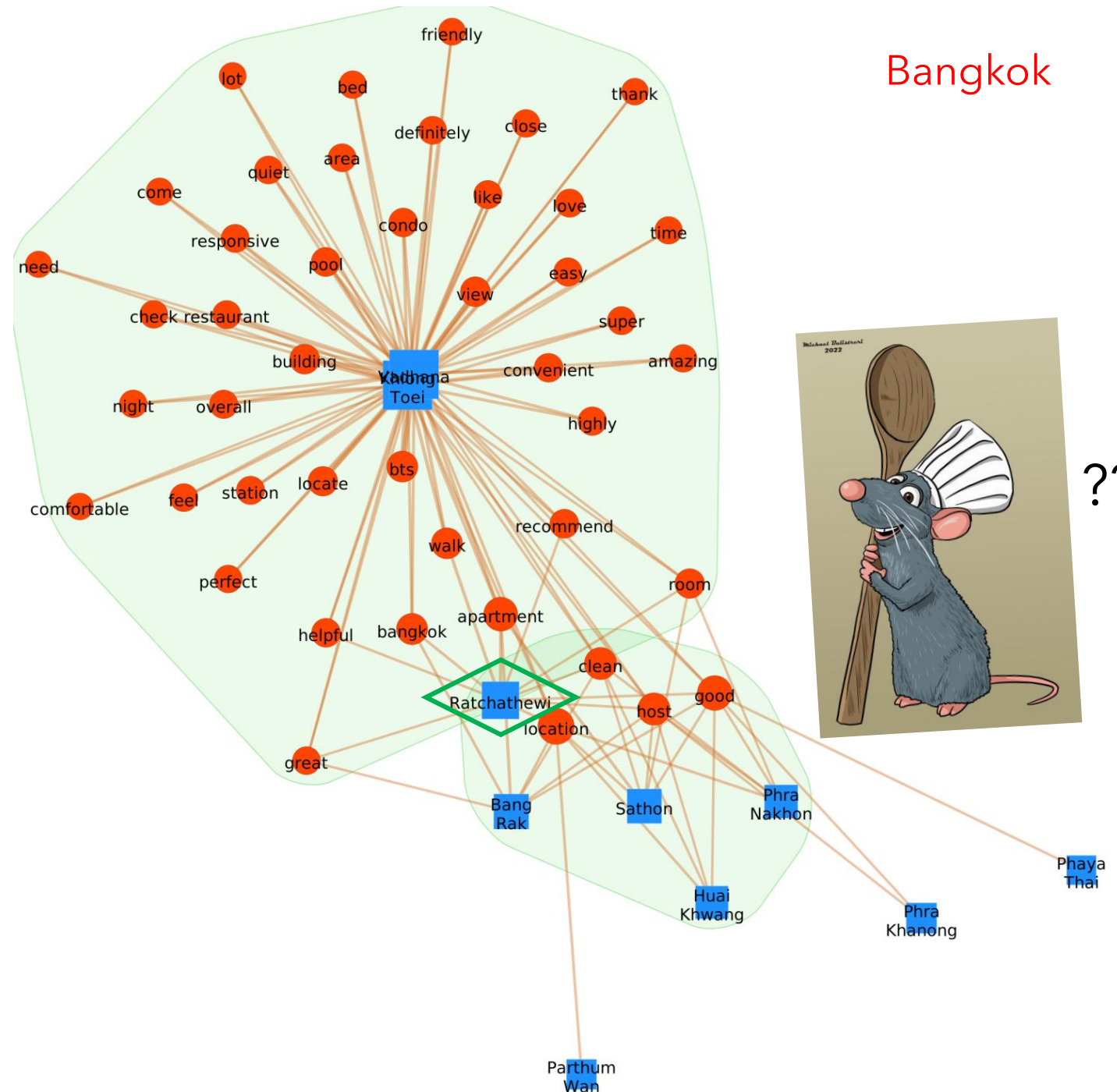
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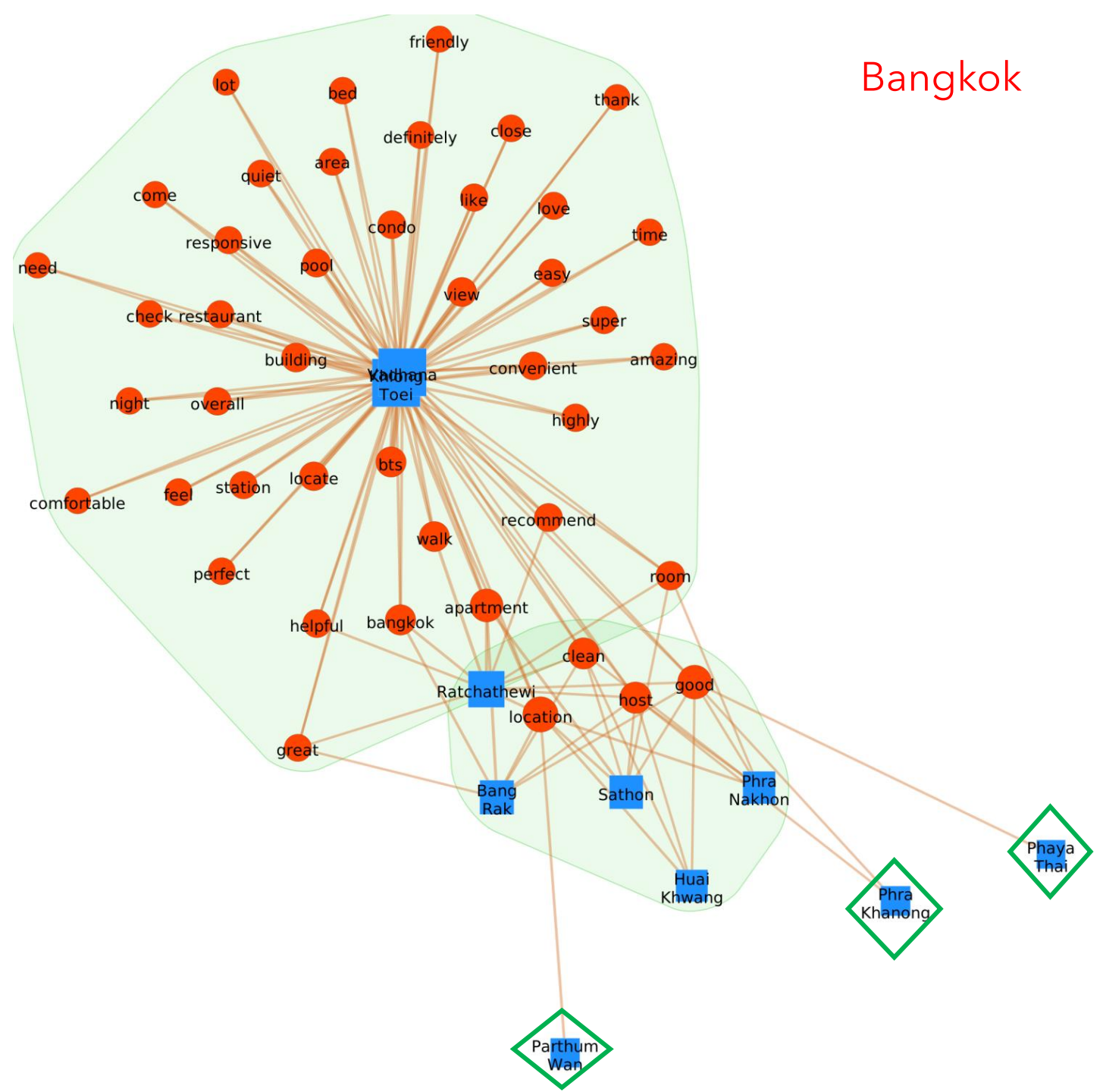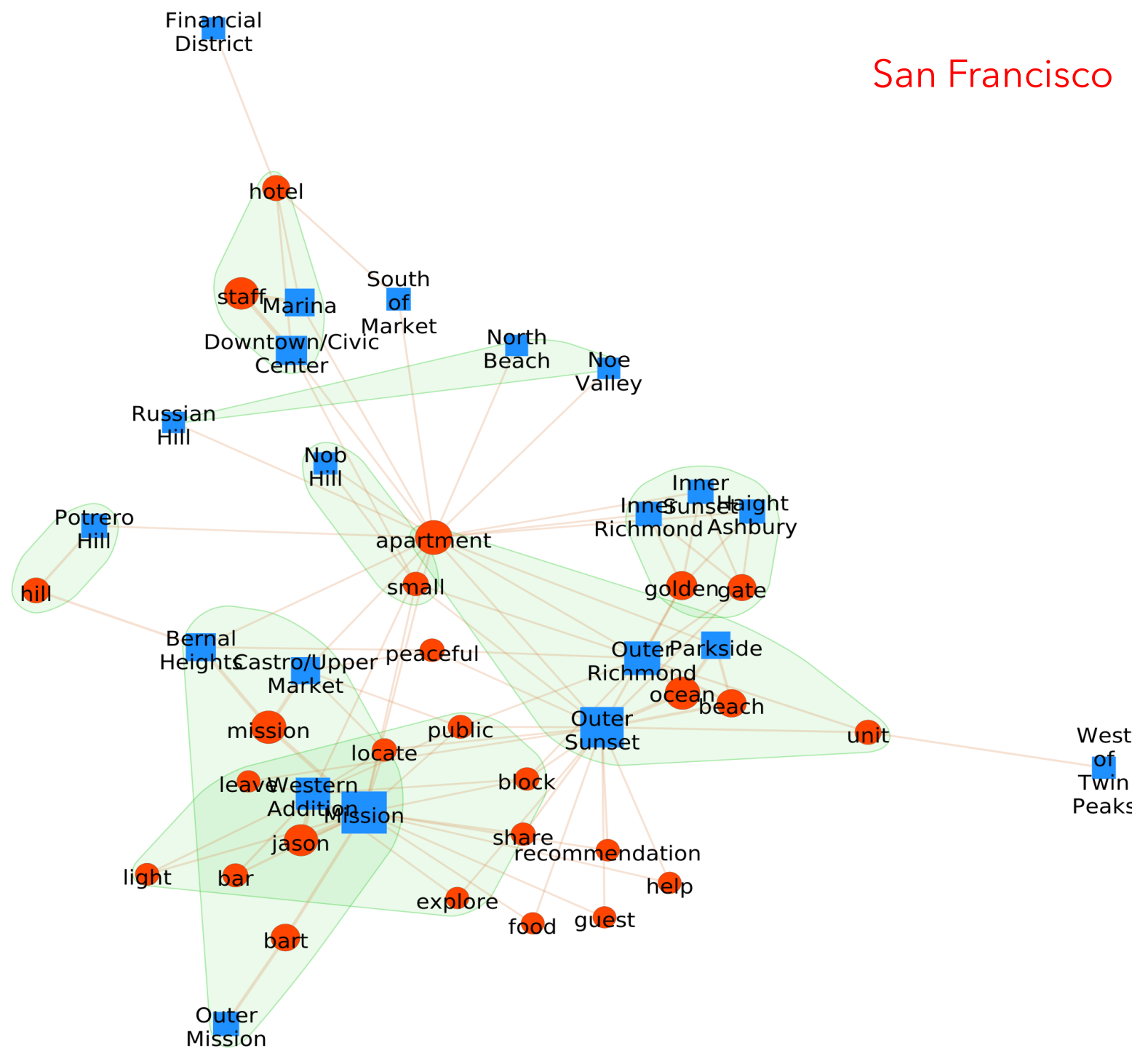- OK Neighborhoods: 3 Districts (Isolates)

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Bangkok

San Francisco

TOPICS BY NEIGHBORHOOD: TEXT NETWORK

- Downtown & Financial District Neighborhood
  - Interactions with hotel staff

- Nature lovers: Outer Richmond, Parkside, Outer Sunset
  - Golden gate bridge
  - Ocean/ beach

- Close to Western Addition & Mission
  - Good location, public transportation, bar

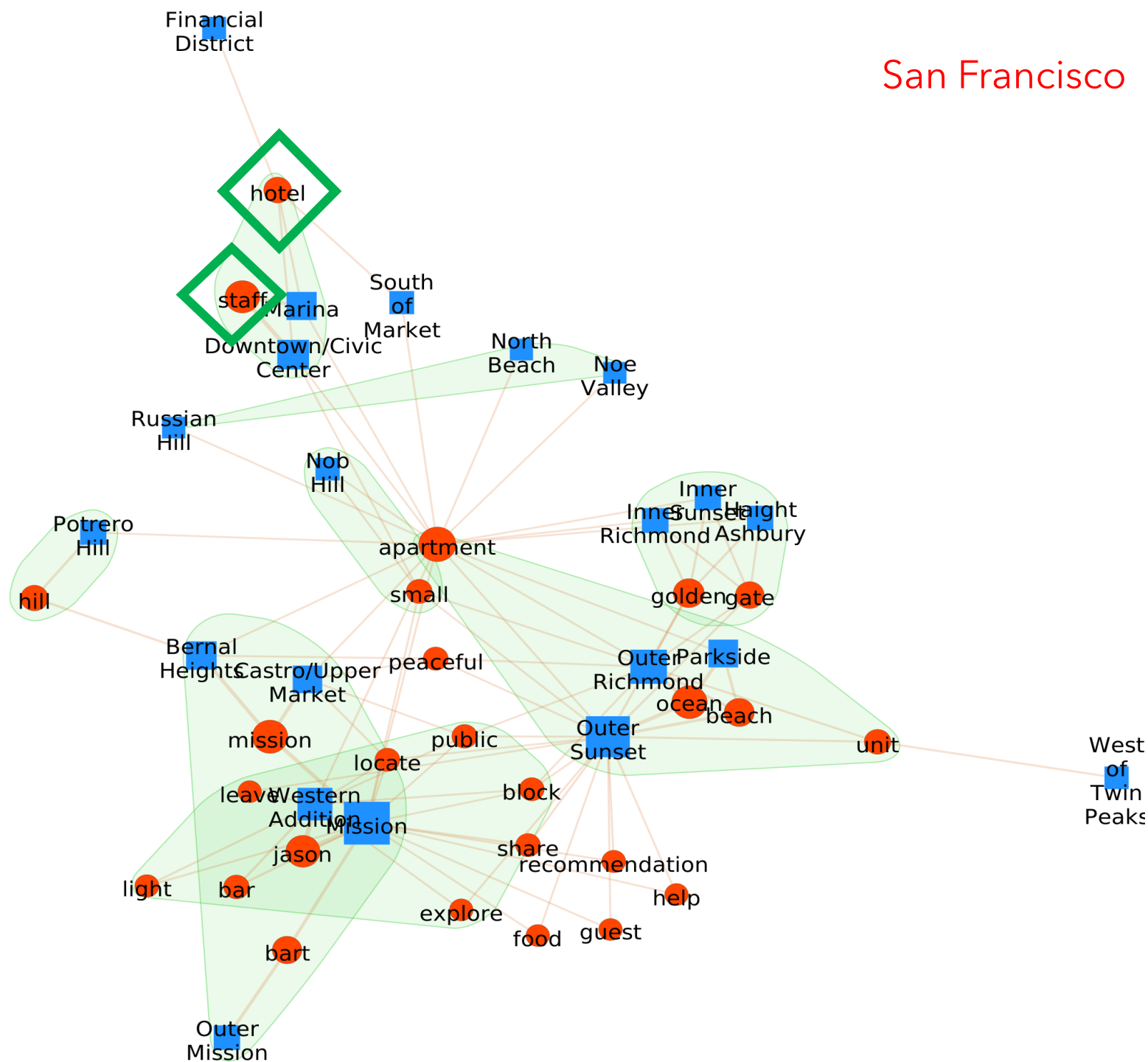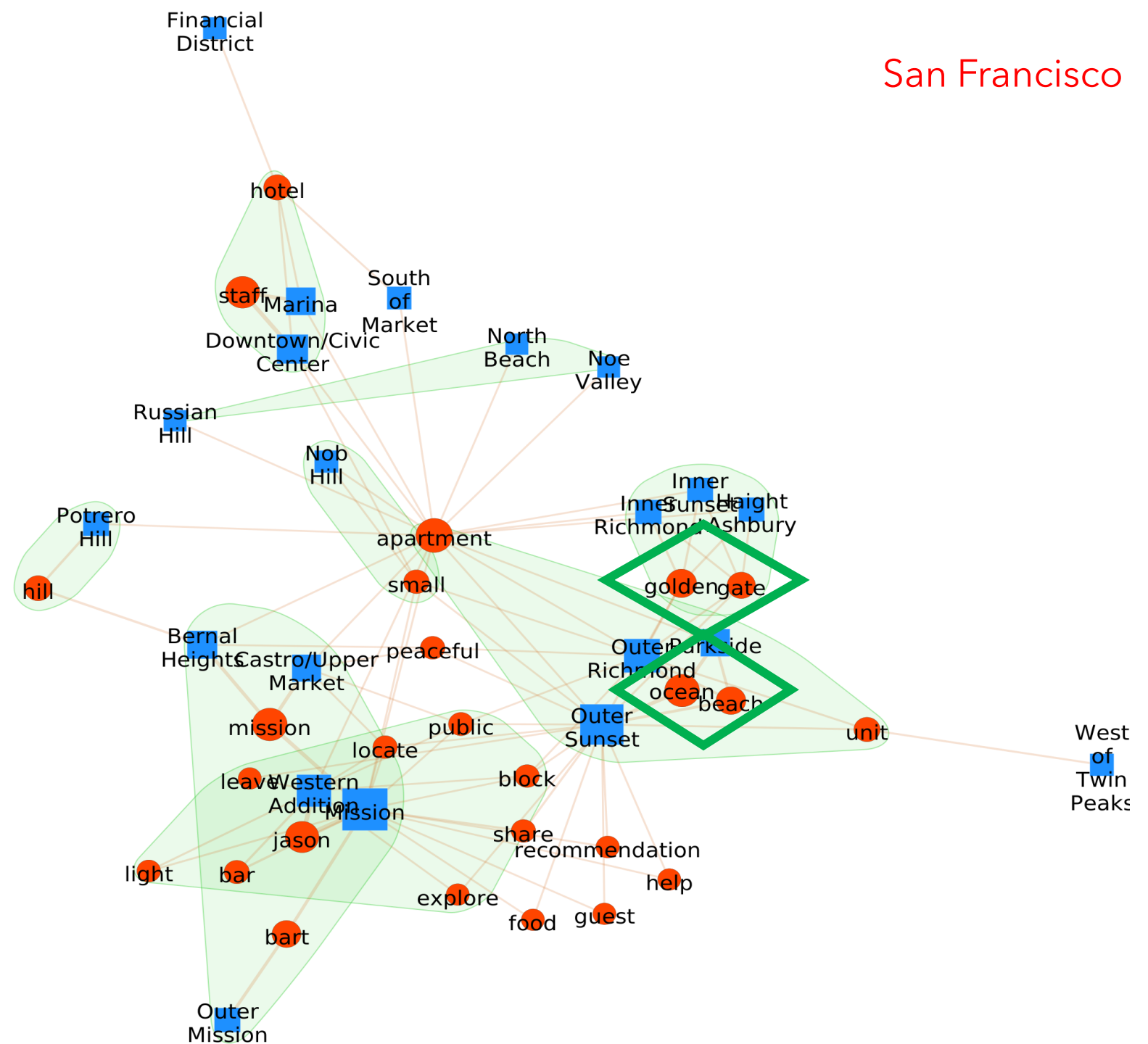- Shared sentiment: good for guests to explore the city

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- **Downtown & Financial District Neighborhood**
  - Interactions with hotel staff

- Nature lovers: Outer Richmond, Parkside, Outer Sunset
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- Close to Western Addition & Mission: Fun night life
  - Good location, public transportation, bar

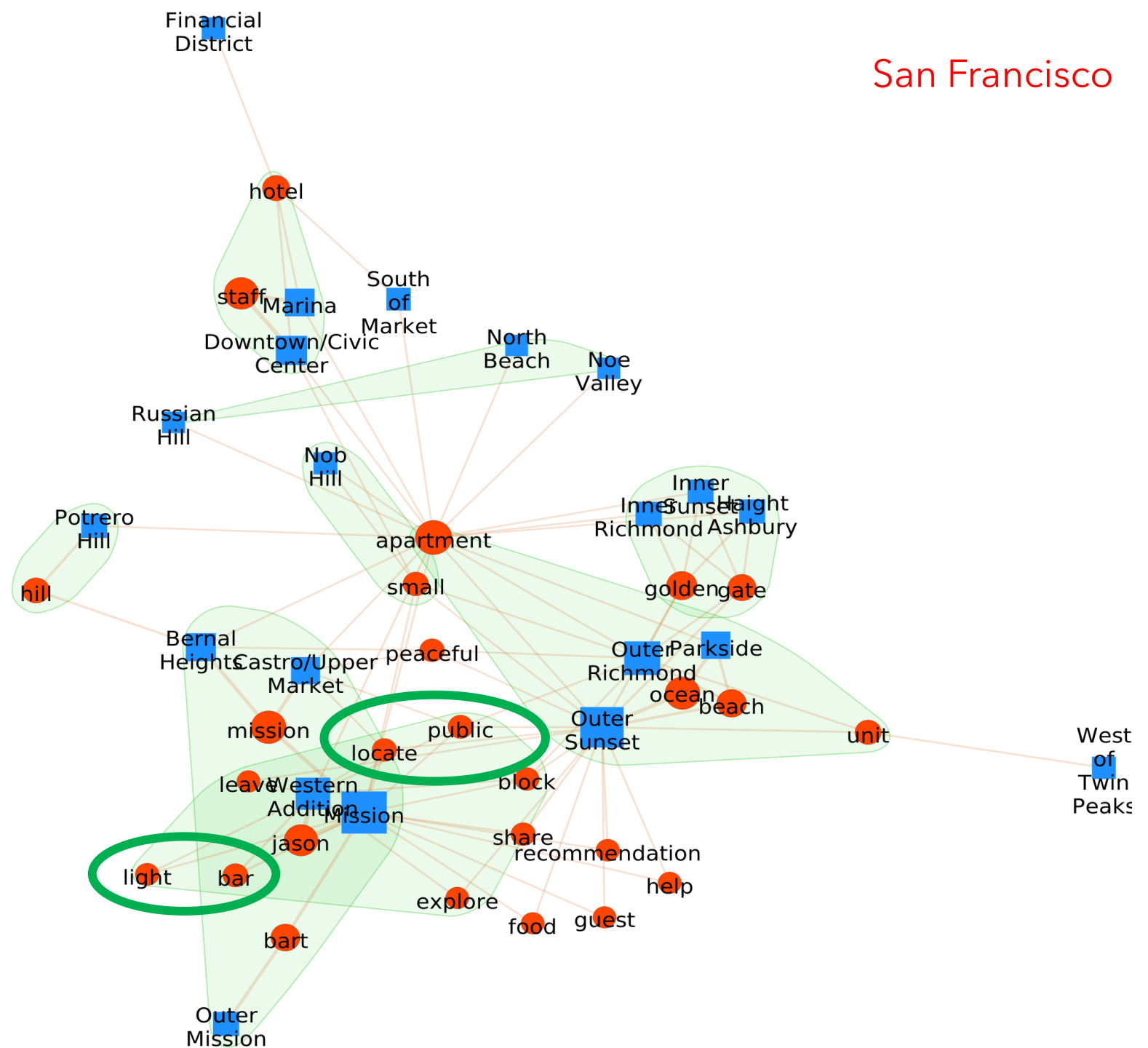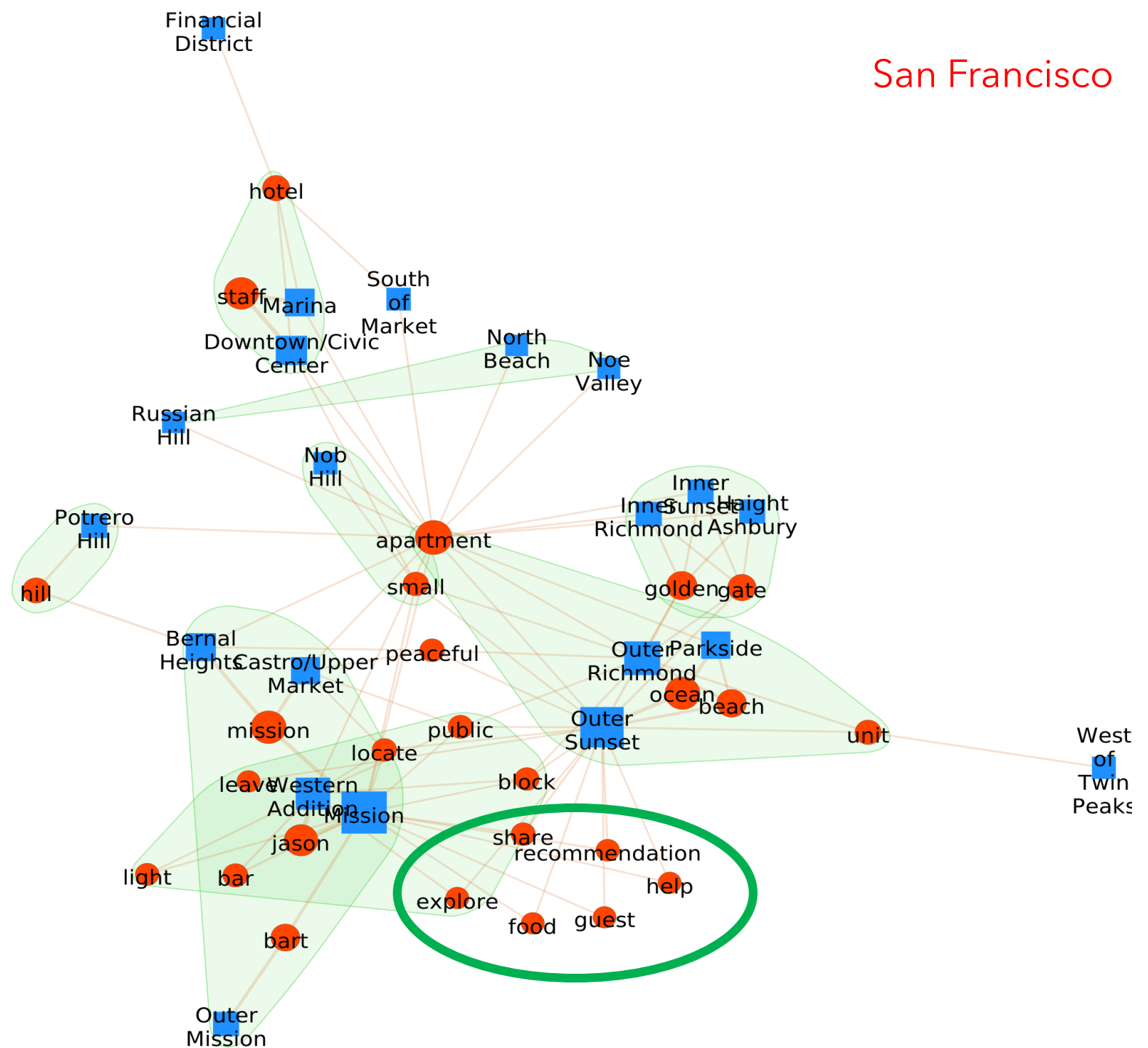- Shared sentiment: good for guests to explore the city

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  - Good location, public transportation, light, bar

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San Francisco

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San Francisco

COMMON TOPICS IN <u>NEGATIVE</u> REVIEWS

5000 COMMENTS W/ LOWEST VADER SCORE

MOST NEGATIVE TOPICS: TEXT NETWORK

- The 2 central districts also receive most complaints.
  - Unclean, dirty
  - Smell
- Ratchathewi also have complaints about cleanliness
- Phra Khanong (an OK neighborhood) sometimes gets negative reviews about hosts.

Bangkok
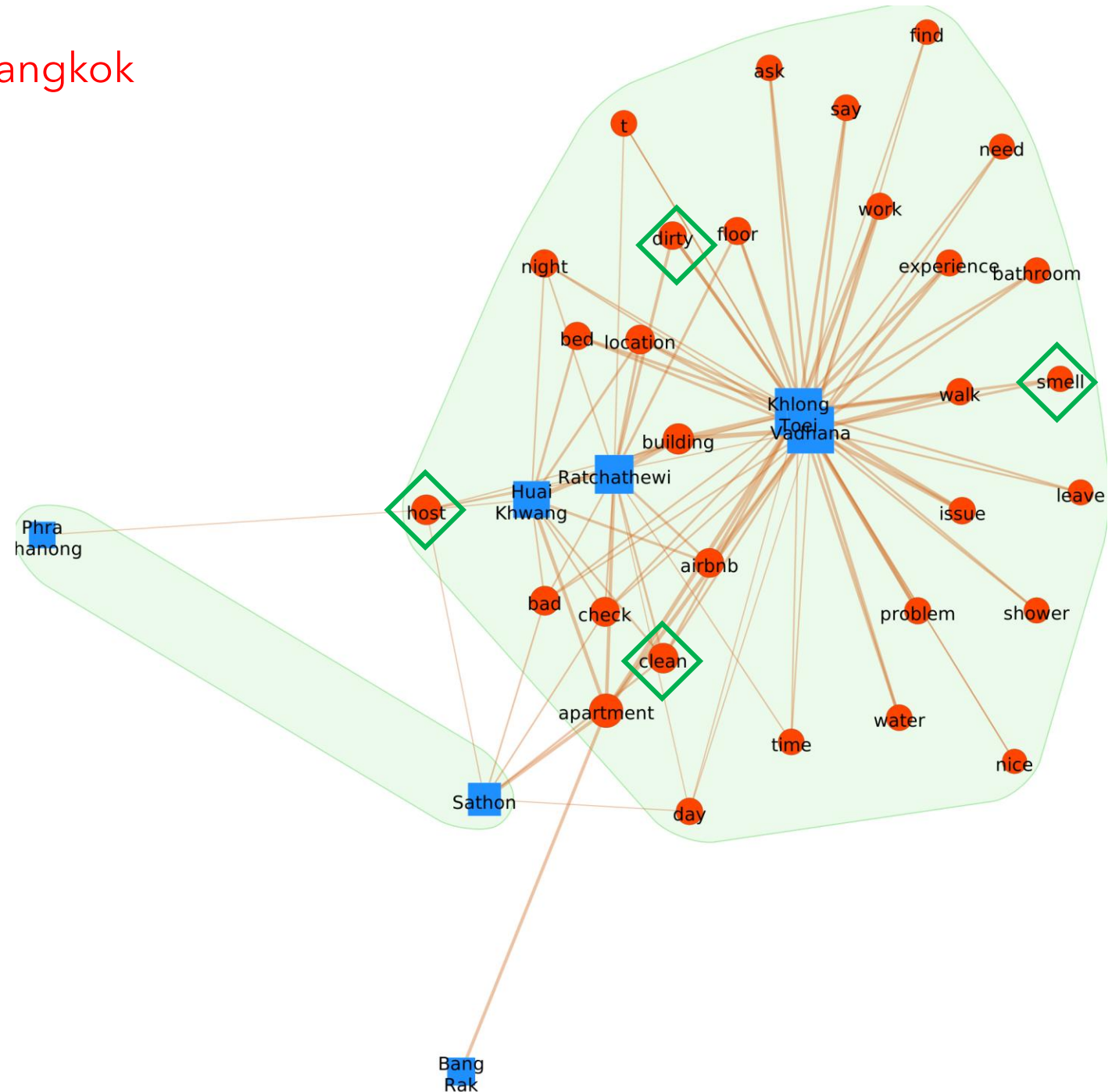
MOST NEGATIVE TOPICS: TEXT NETWORK

- Mainly from the *Downtown/ Civic Center* area
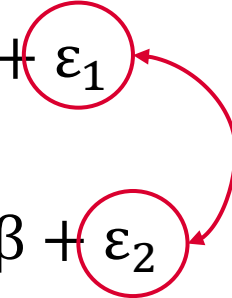 - loud
  - homeless, unsafe
- Some complaints about stain, towel in other areas

San Francisco
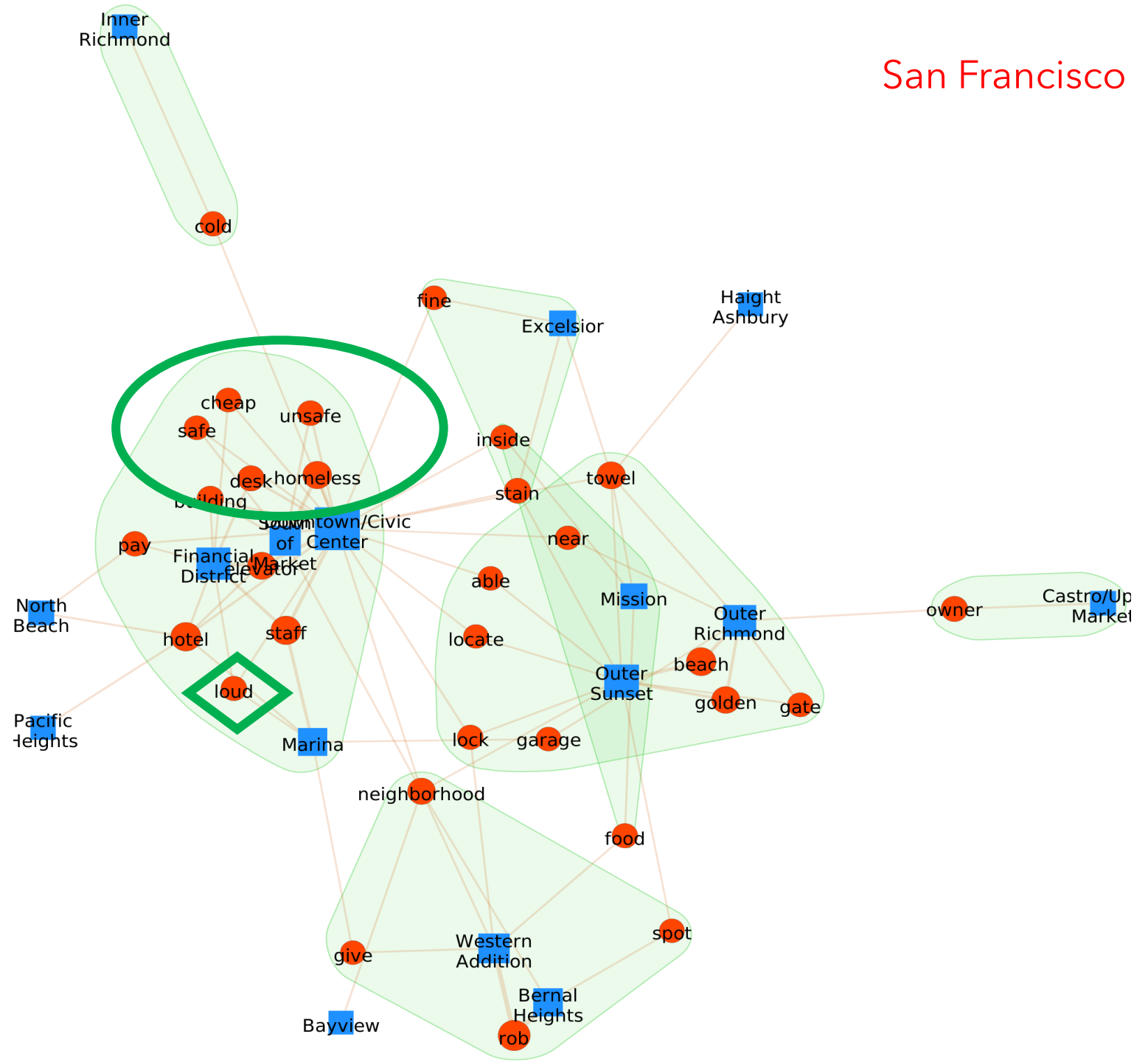
REGRESSION ANALYSIS

REGRESSION ANALYSIS: SIMULTANEOUS EQUATIONS MODELS

Seemingly Unrelated Regression:

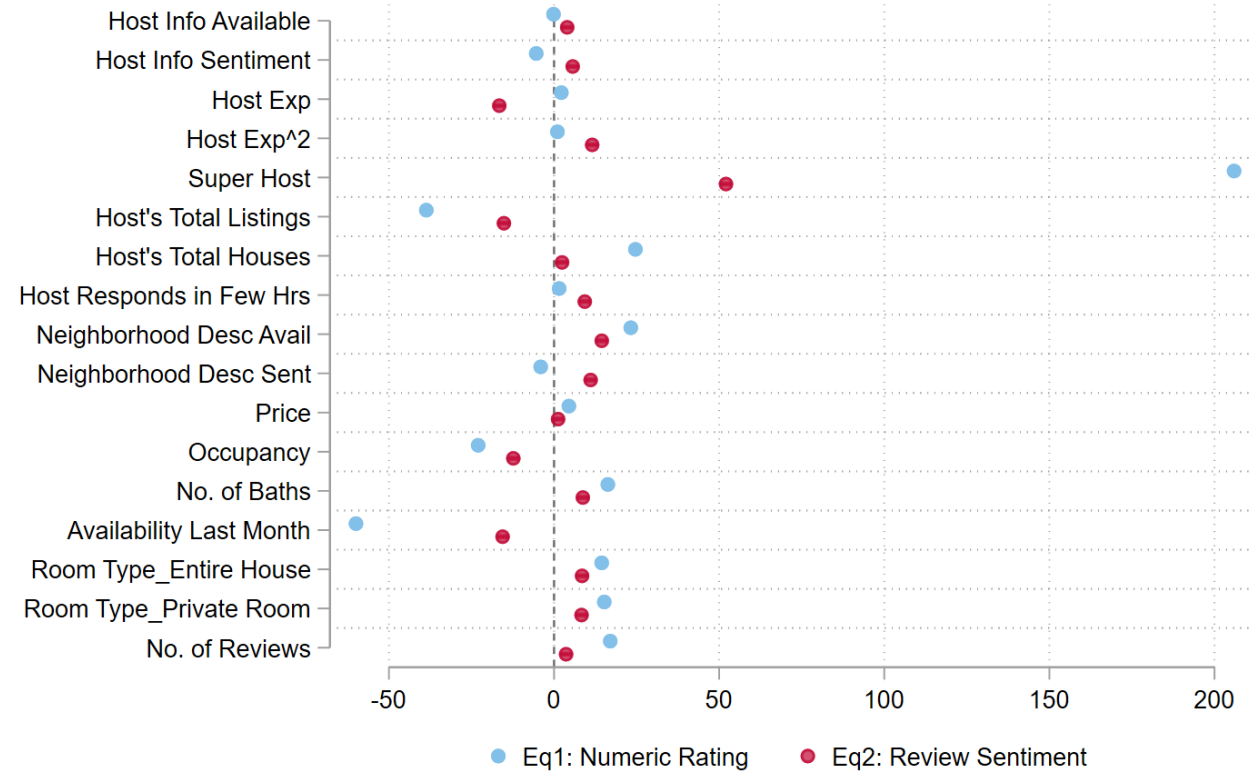$$\text{Numeric Rating} = \beta_{0a} + X\beta + \varepsilon_1$$

$$\text{Review Sentiment} = \beta_{0b} + X\beta + \varepsilon_2$$

- **Numeric Rating**: 0 – 5

- **Review Sentiment**: VADER (0 – 1)

- **X**: Independent Variables

- $\boldsymbol{\varepsilon_1}$ & $\boldsymbol{\varepsilon_2}$: Error terms

REGRESSION ANALYSIS: SIMULTANEOUS EQUATIONS

Bangkok

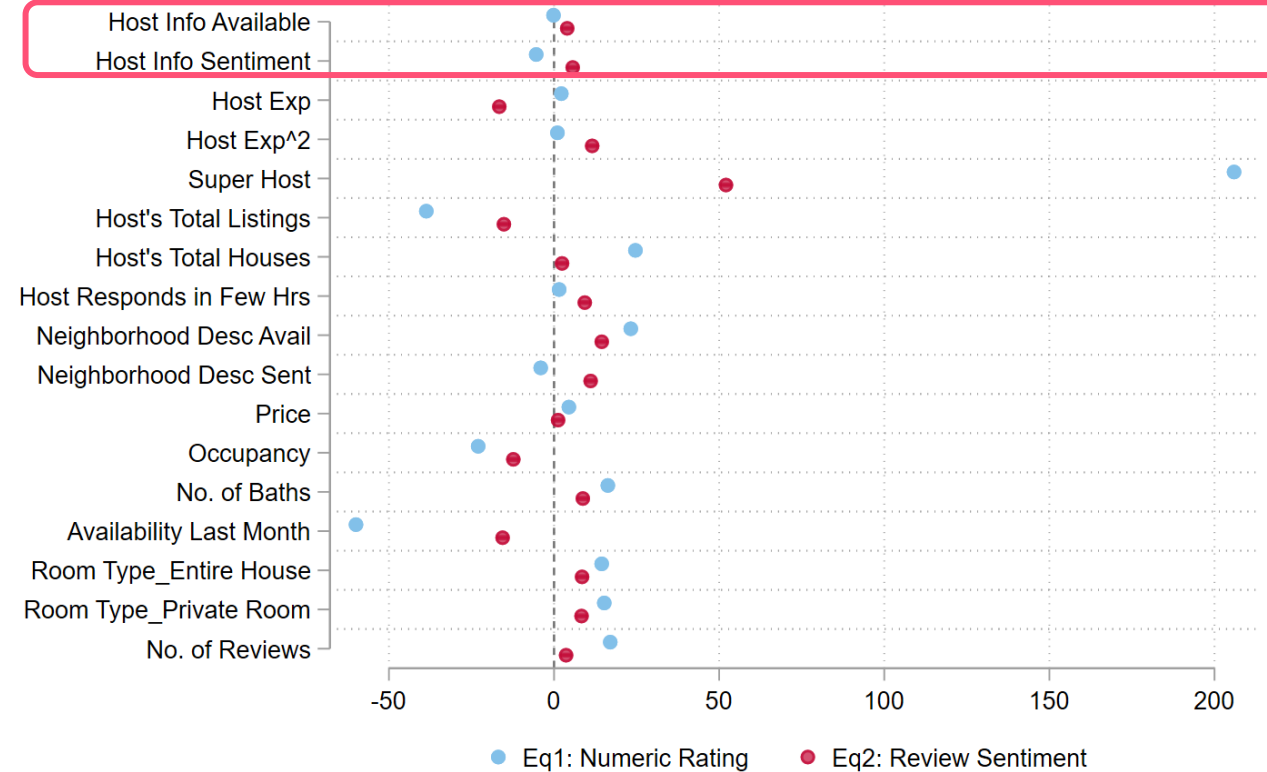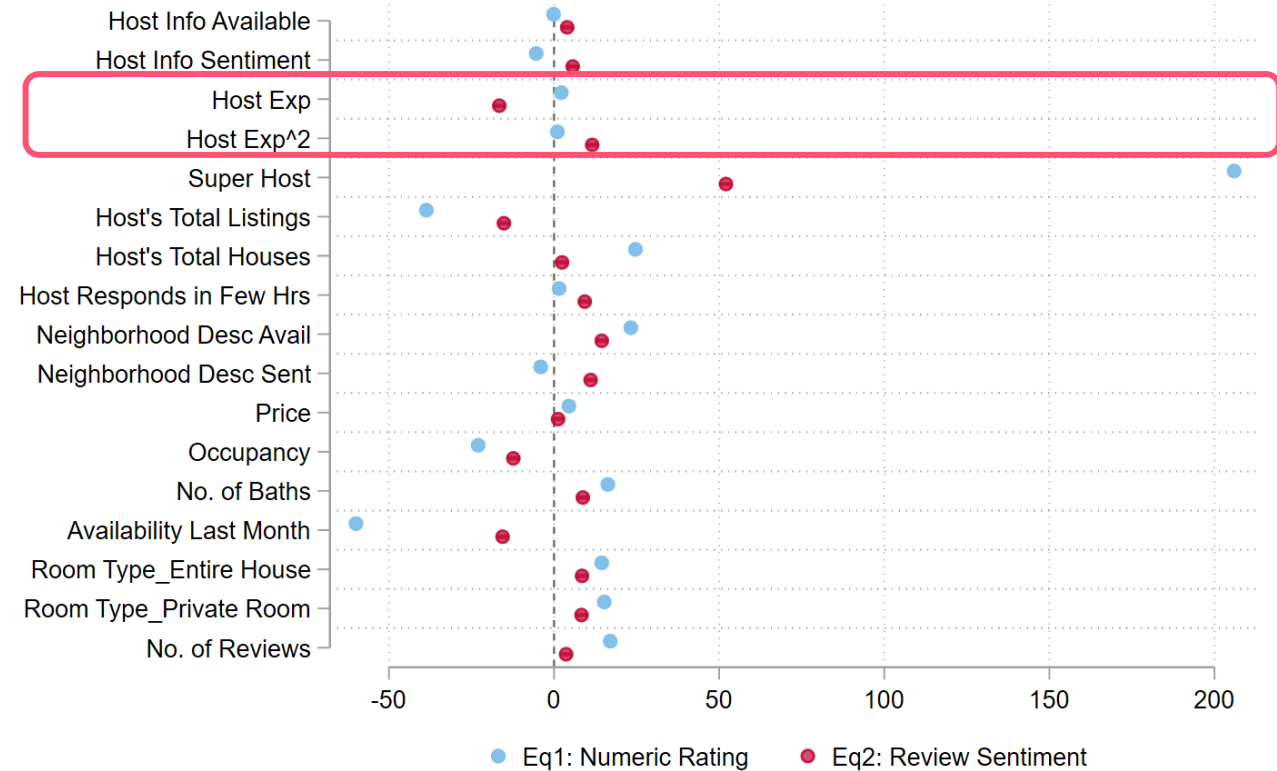Figure 1B. SUR of Airbnb Ratings & Reviews in Bangkok (Standardized Coefs)

Eq1: Numeric Rating   Eq2: Review Sentiment

San Francisco

Figure 2B. SUR of Airbnb Ratings & Reviews in San Fran (Standardized Coefs)

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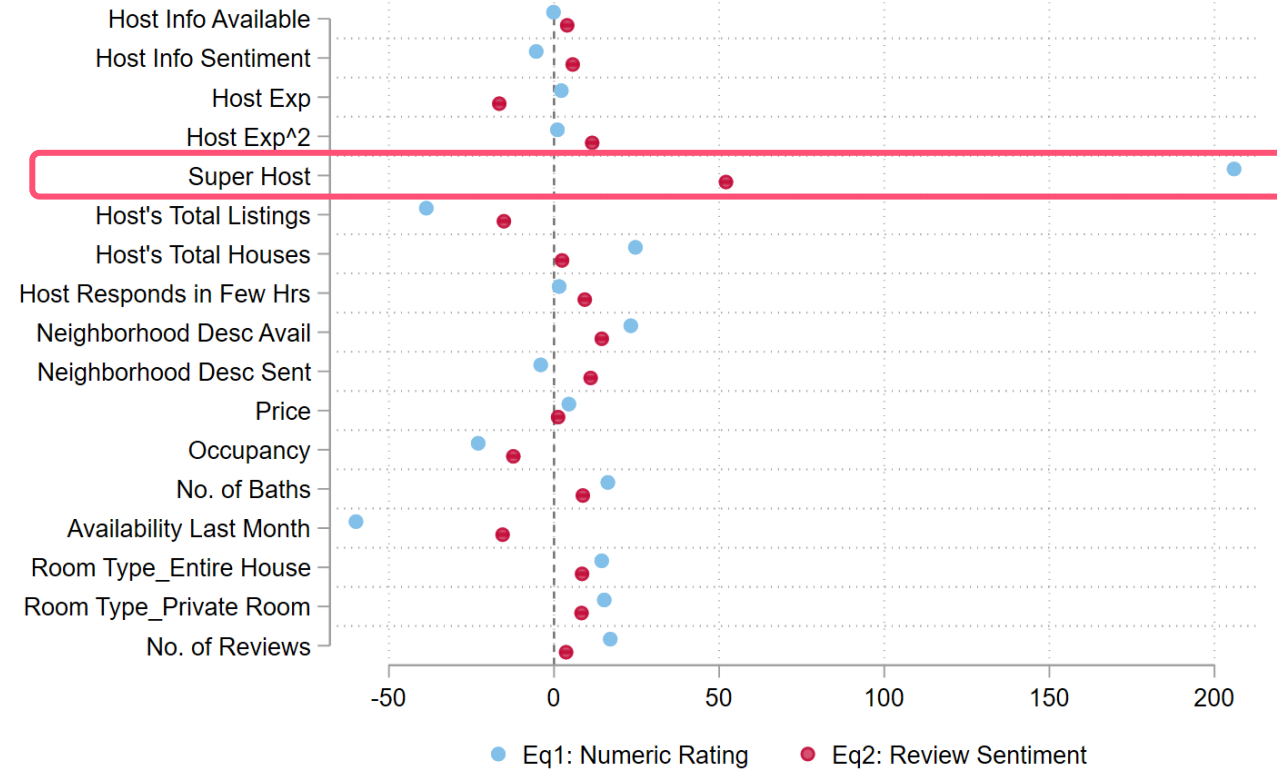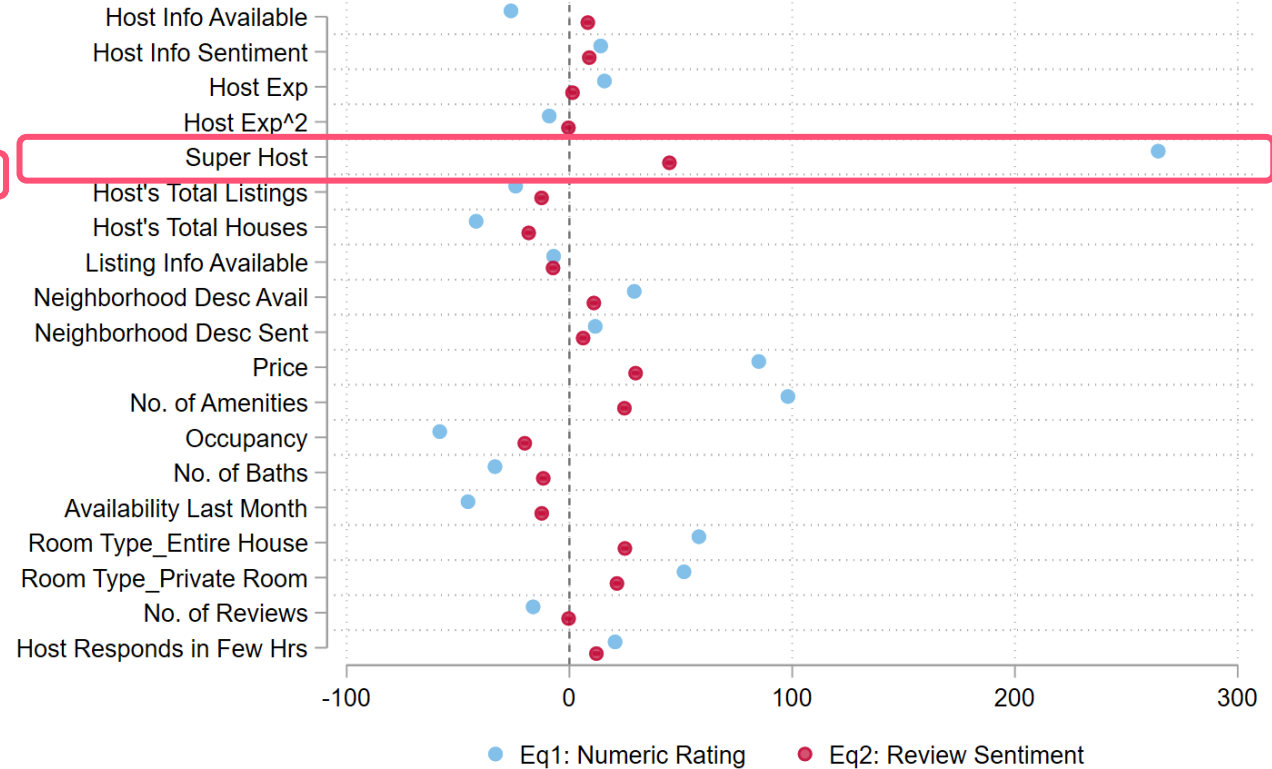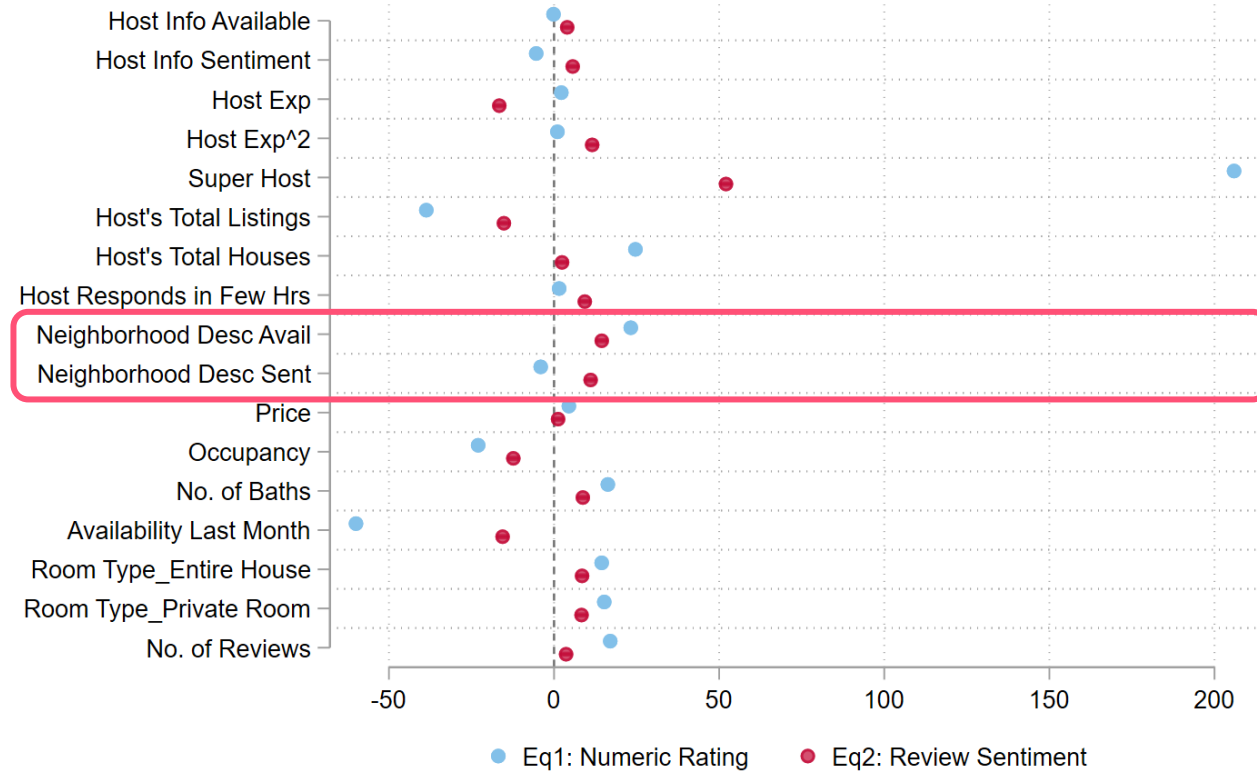
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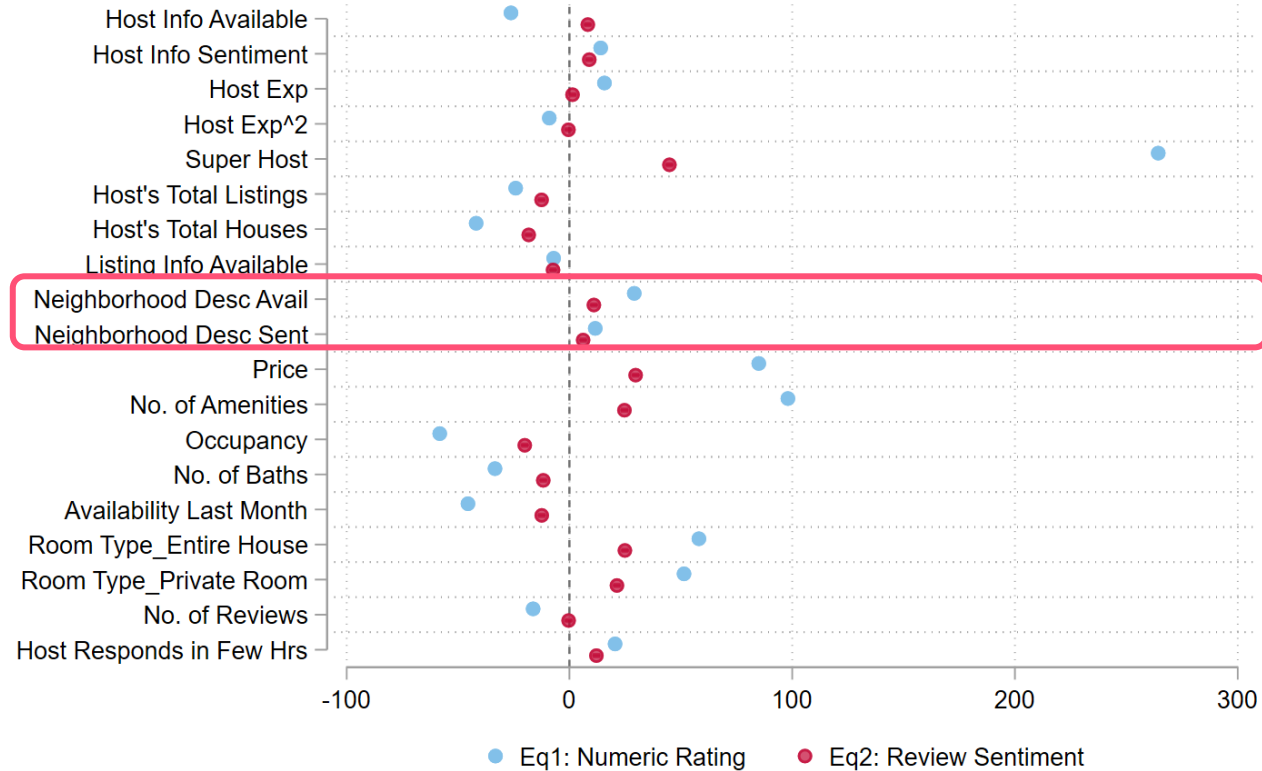
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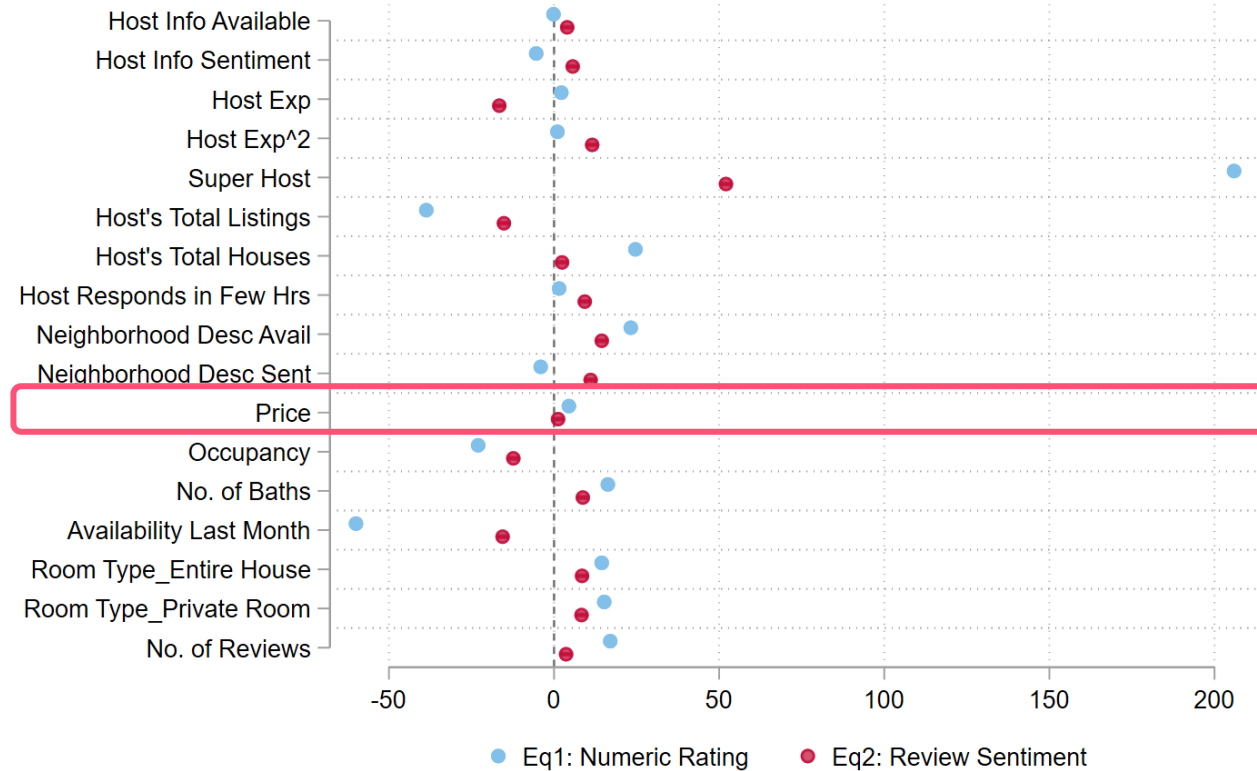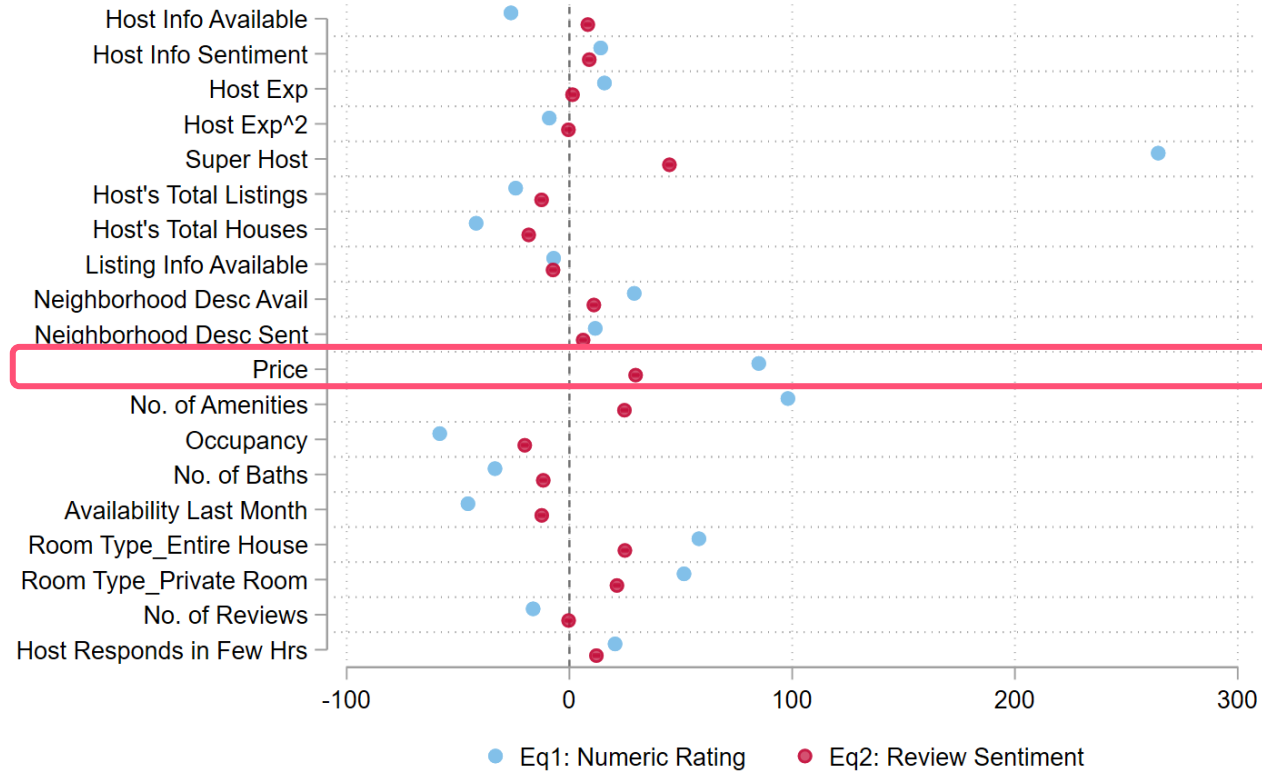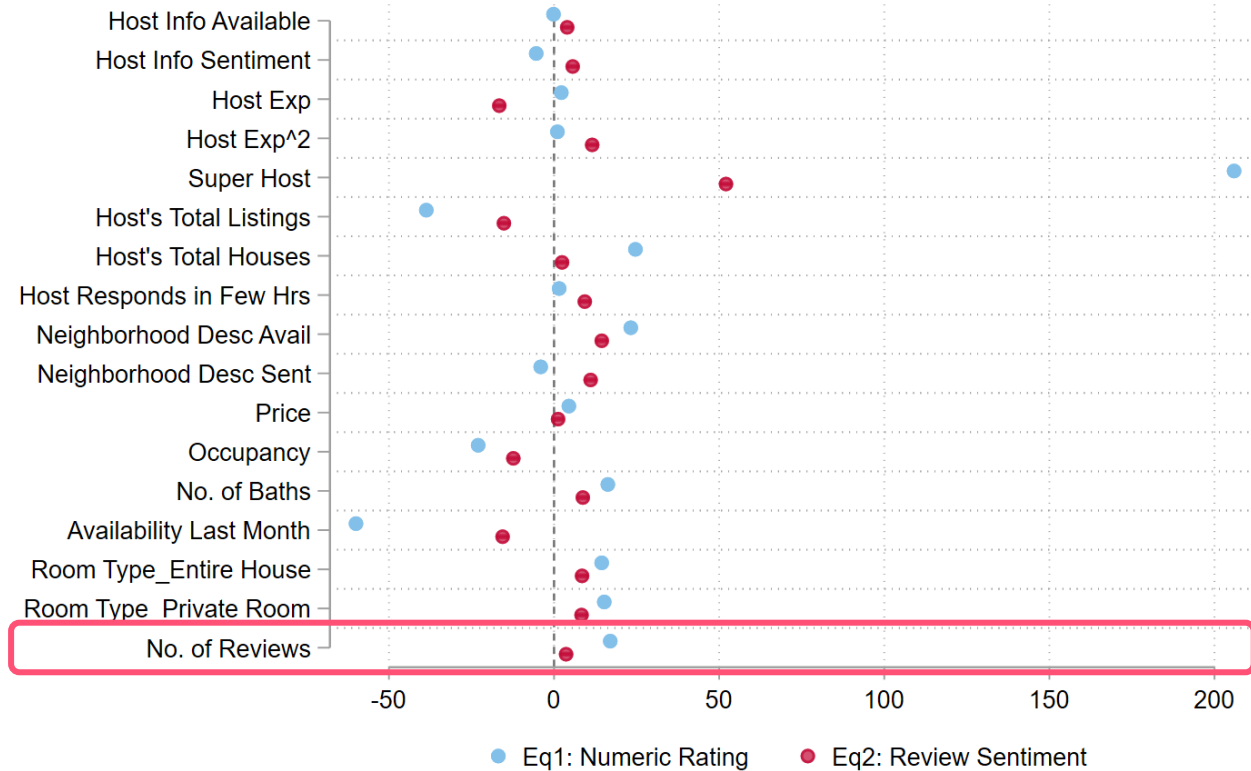
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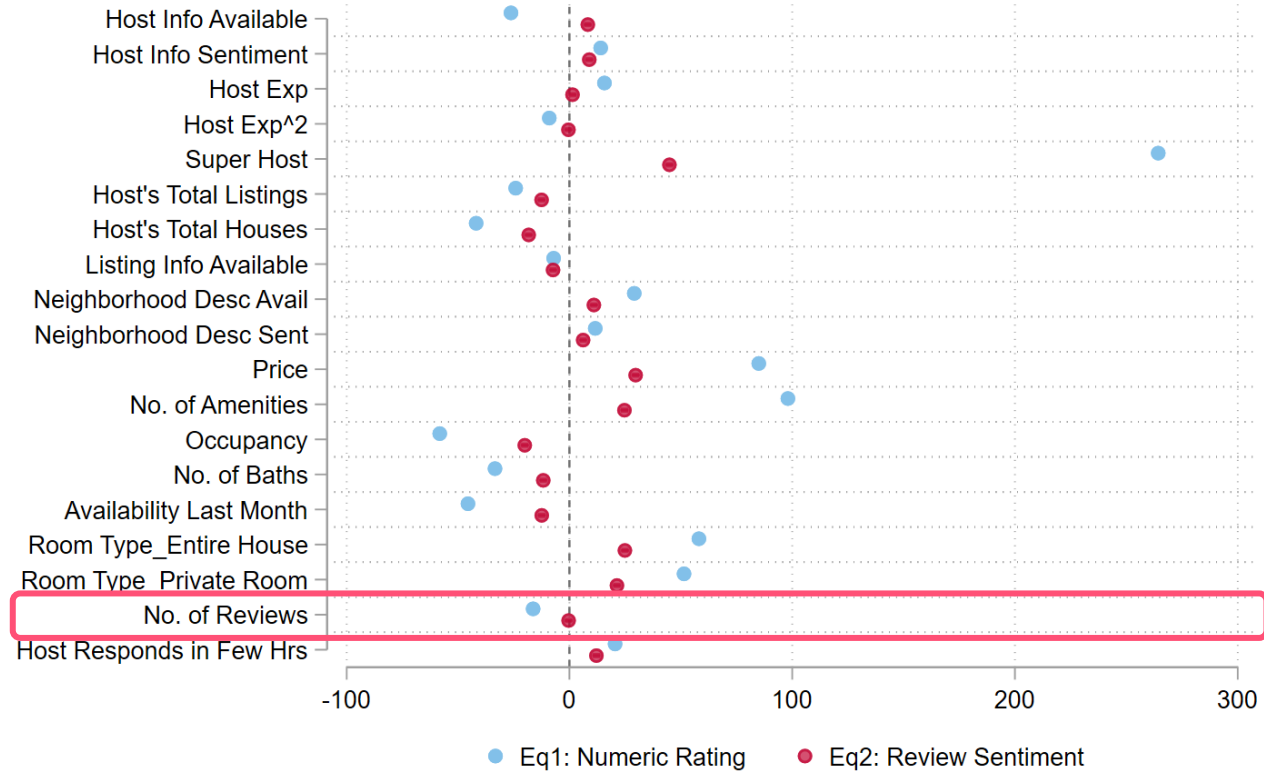# REGRESSION ANALYSIS: SIMULTANEOUS EQUATIONS

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San Francisco

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CONCLUSION

- Reviews are often positive in both places
- Guests mention similar aspects of an Airbnb property in their reviews
    - Whether the place is clean, have good hosts, good locations, etc.
- How you describe & advertise about yourself & property matter
    - More positive bios & descriptions → impact customer feedback.
- Being a good host is important
    - The most powerful predictor of the review score & sentiment the most
- Some **inherent differences** between cities
    - Opposite sides of the Earth, different rules, cultures, economies.
    - BK neighborhoods are mostly distinguished by their amenities & features.
    - SF neighborhoods seem have more distinct characteristics.
        - Beach-nature districts, night/bar districts, Hotel/downtown