RUB

RUHR-UNIVERSITÄT BOCHUM

USING NEIGHBORHOOD PREFERENCES TO DEVELOP AGENT-BASED MODELS

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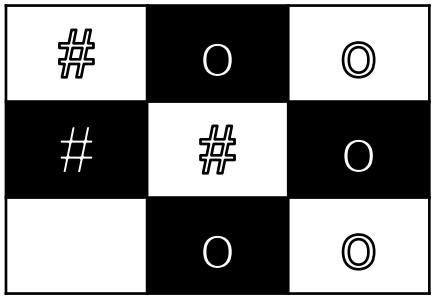
Structure

1. Schelling's model of spatial segregation
2. Surveys on neighbourhood preference
3. ALLBUS neighbourhood vignettes
4. Survey results implemented in ABM
5. Conclusions
6. Literature

1. Schelling's model of spatial segregation

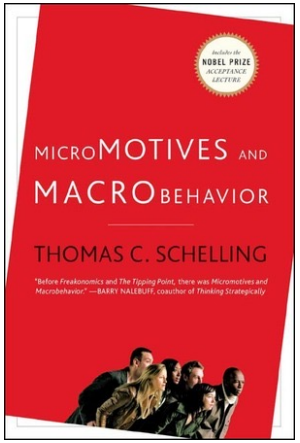


Segregation Processes:

- reveal unintended consequences
- feedback processes

Assumptions :

- Chessboard symbolizes a map of houses
- Two groups of players, e.g. households, of equal size
- Randomly distributed across the board
- Some houses remain vacant (to enable relocations)
- immediate neighbourhood from a household perspective is up to 8 houses
- behavioural rule:
  - If a household is in the minority, i.e. if more than half of the neighbours are from the other group, it will relocate (Schelling 2006: 161ff.)



2. Surveys on neighbourhood preference

- Method goes back to survey by Farley (1978: 329)
  - the immediate neighbourhood of a household consists of 14 houses
  - 5 vignettes

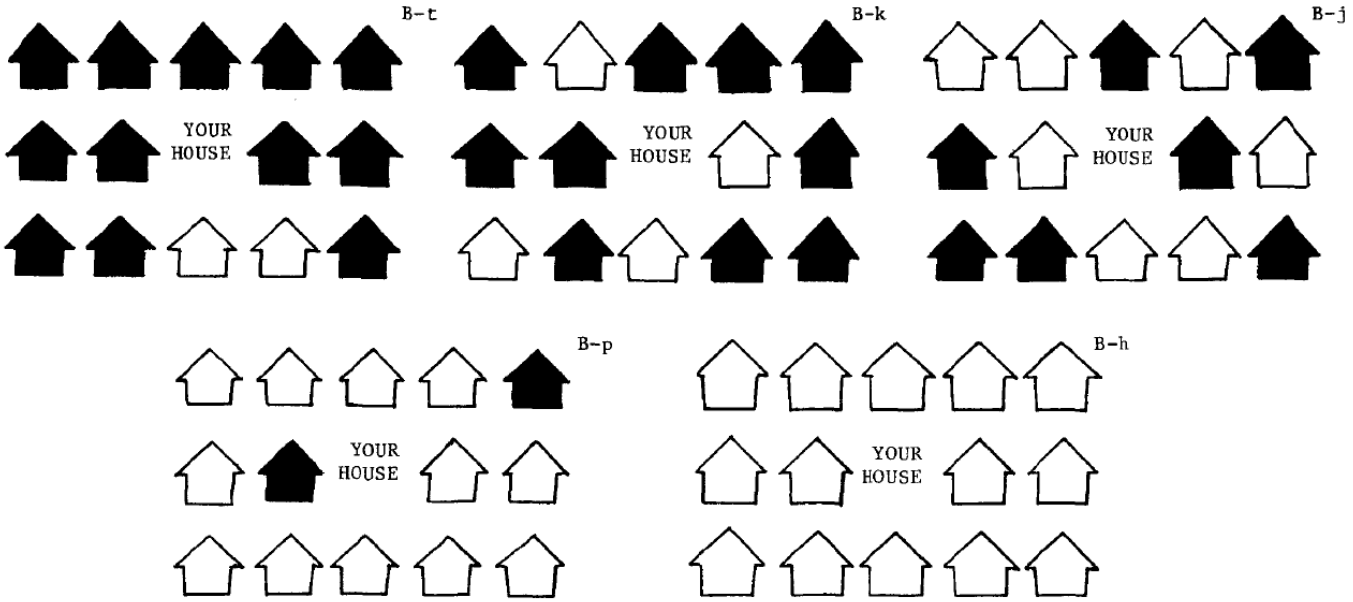
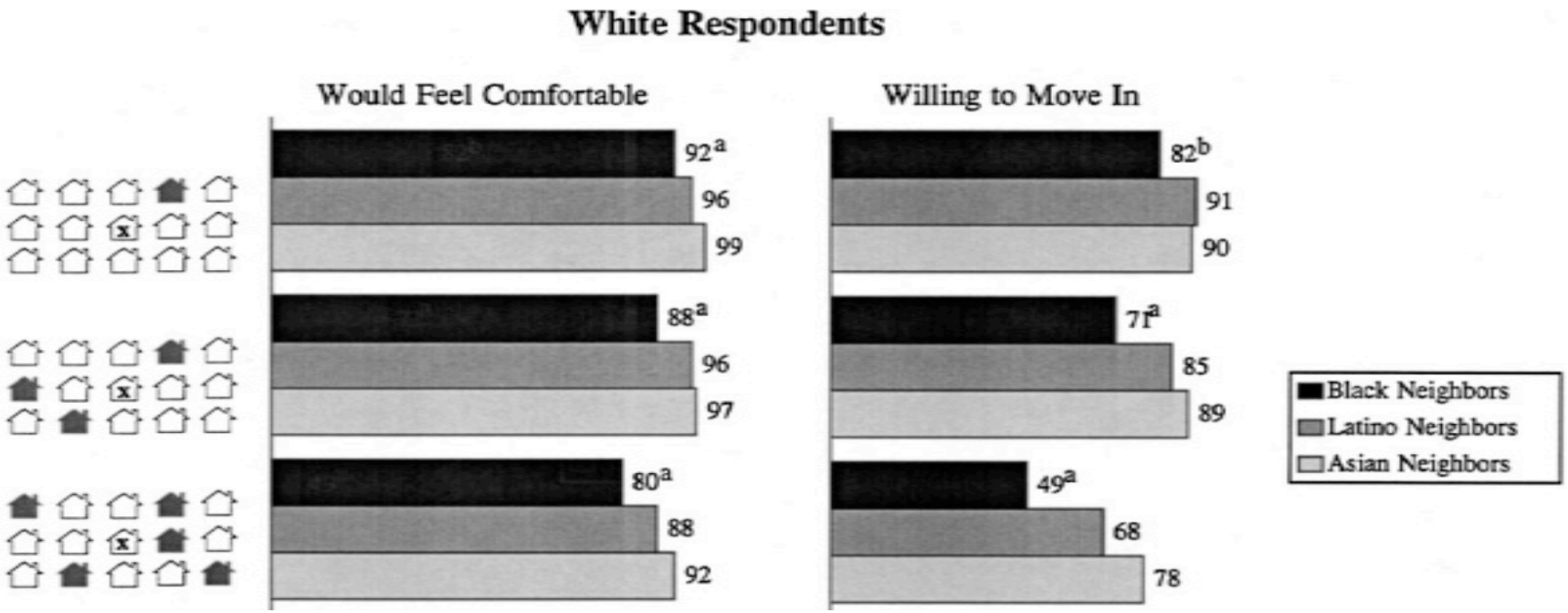


FIG. 3. Neighborhood diagrams for black respondents.

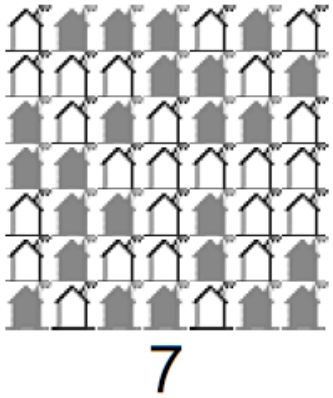
2. Surveys on neighbourhood preference

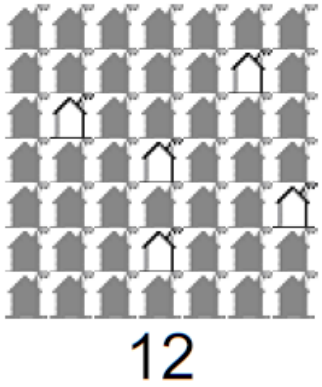
- Further development by Zubrinsky and Bobo (2006: 356)
  - the immediate neighbourhood of a household consists of 14 houses
  - extending to different ethnic groups
  - 5 vignettes



3. ALLBUS neighbourhood vignettes

- Survey in ALLBUS 2006
  - Extension of neighbourhood from 14 to 48 houses. This is more in line with the reality of life in urban societies.
  - Tends to be higher rejection with higher share of out-group, but also rejection of extremely high proportions of share of in-group

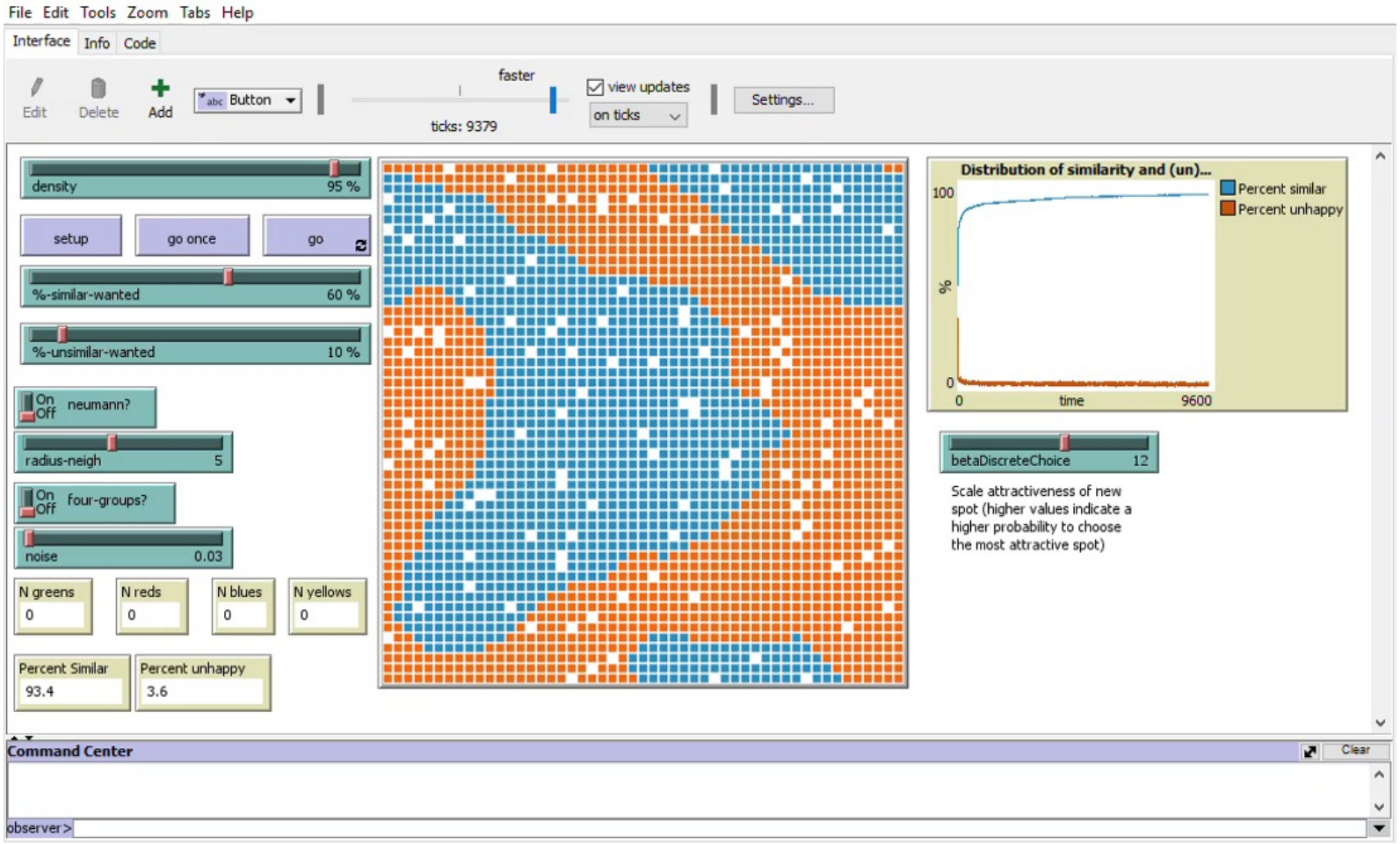




3. ALLBUS neighbourhood vignettes

		Would like to live there	Would not like to live there
	Share of foreigners	2006	2006
1	0.0	81%	5%
2	8.3	81%	2%
3	16.6	73%	3%
4	25.0	56%	7%
5	33.3	40%	12%
6	41.6	29%	19%
7	50.0	19%	27%
8	58.3	11%	36%
9	66.6	6%	46%
10	75.0	3%	58%
11	83.0	1%	68%
12	91.6	1%	76%
13	98.0	1%	99%

4. Survey results implemented in ABM



4. Survey results implemented in ABM

concept	name of the parameter	values
random effect	noise	0.03
density	density	80, 95
surrounded by in-group households	%-similar-wanted	50, 60, 70, 80
surrounded by out-group households	%-unsimilar-wanted	0, 5, 10, 15, 20
tolerance composition in the society	tolerance-comp	Four subgroups

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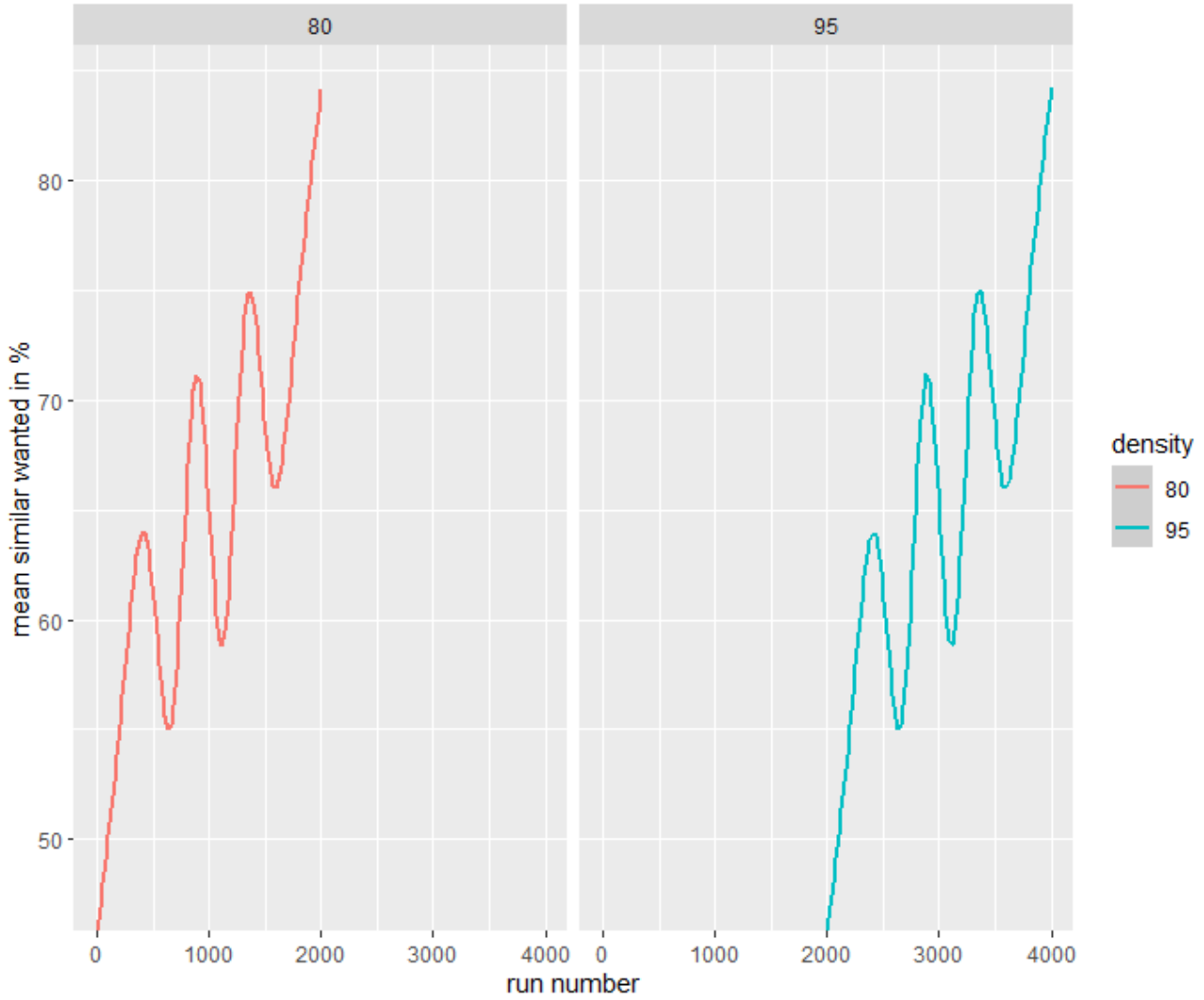

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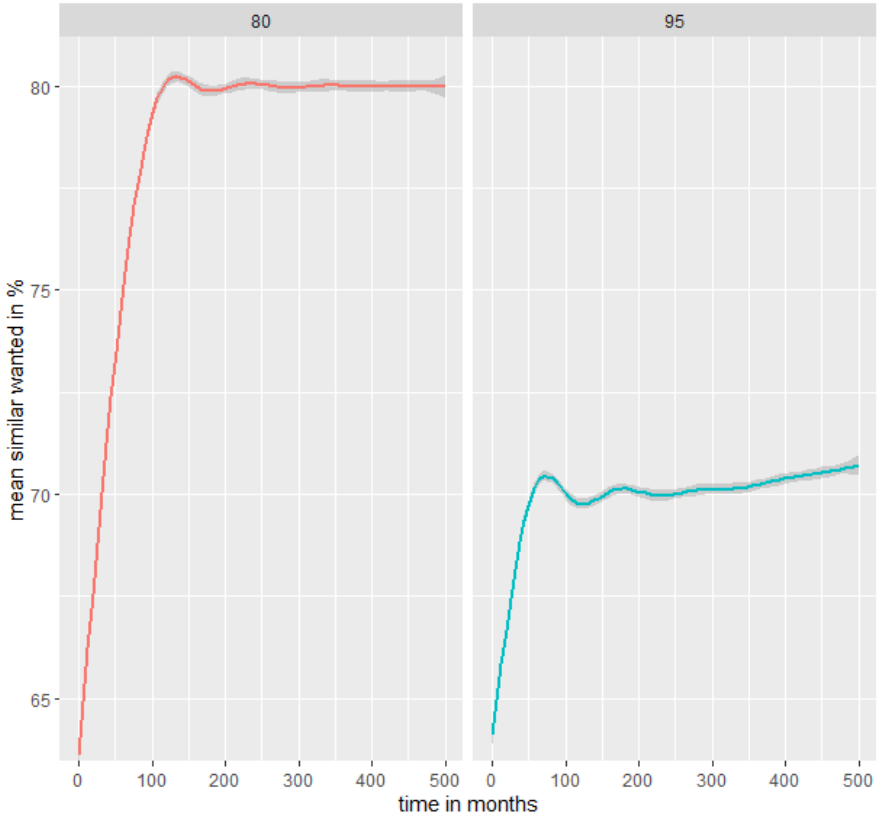
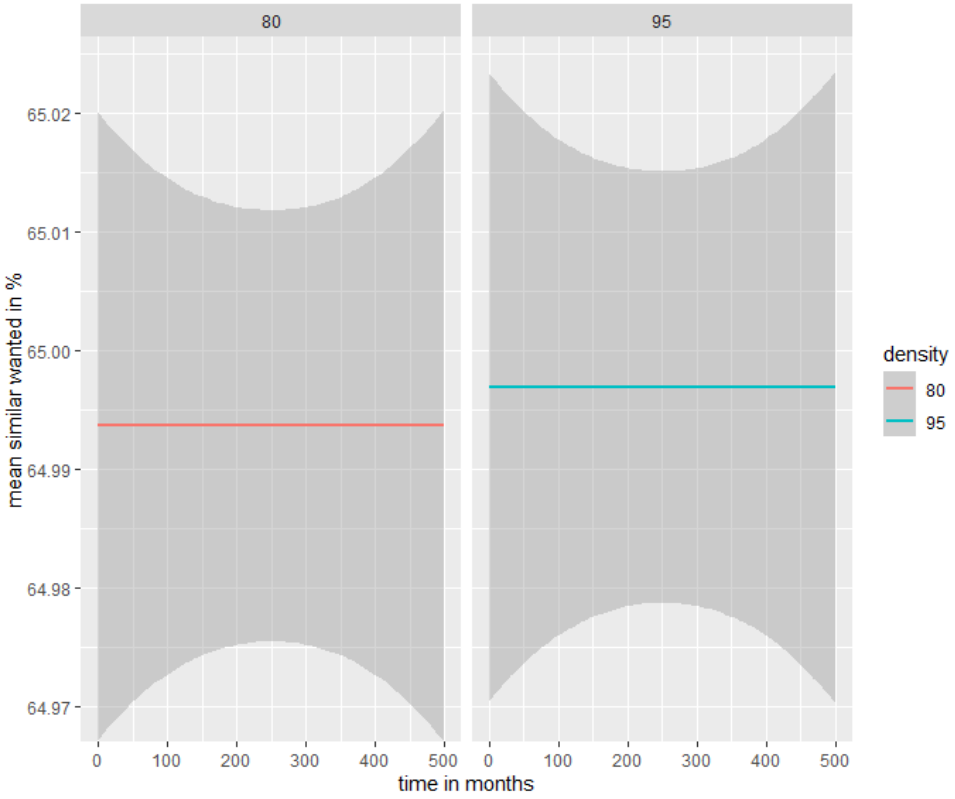


without a minimum of out-group households in the neighborhood



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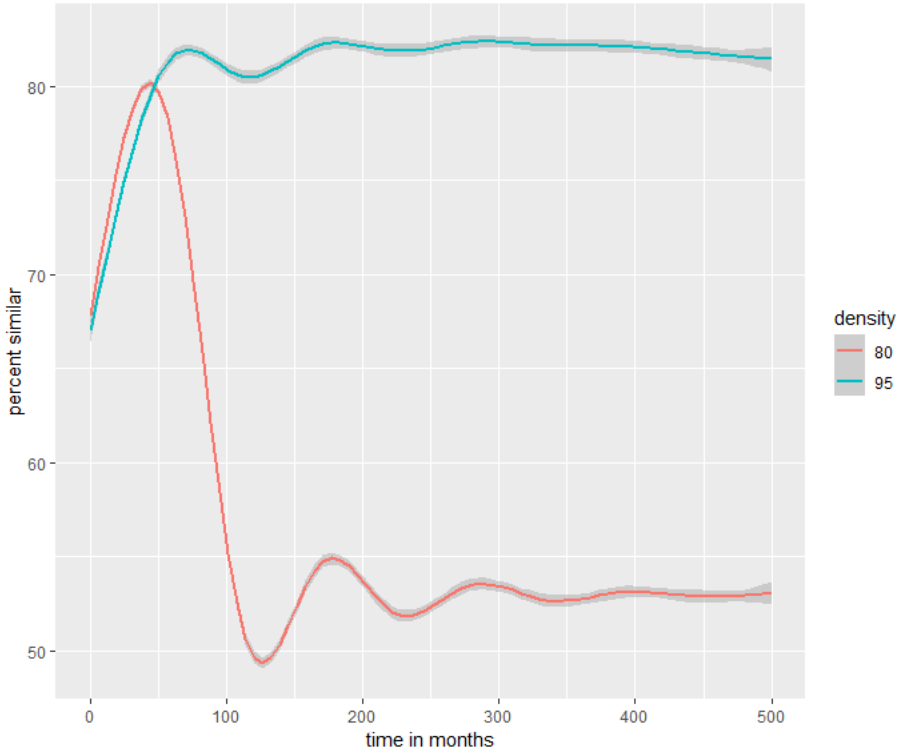

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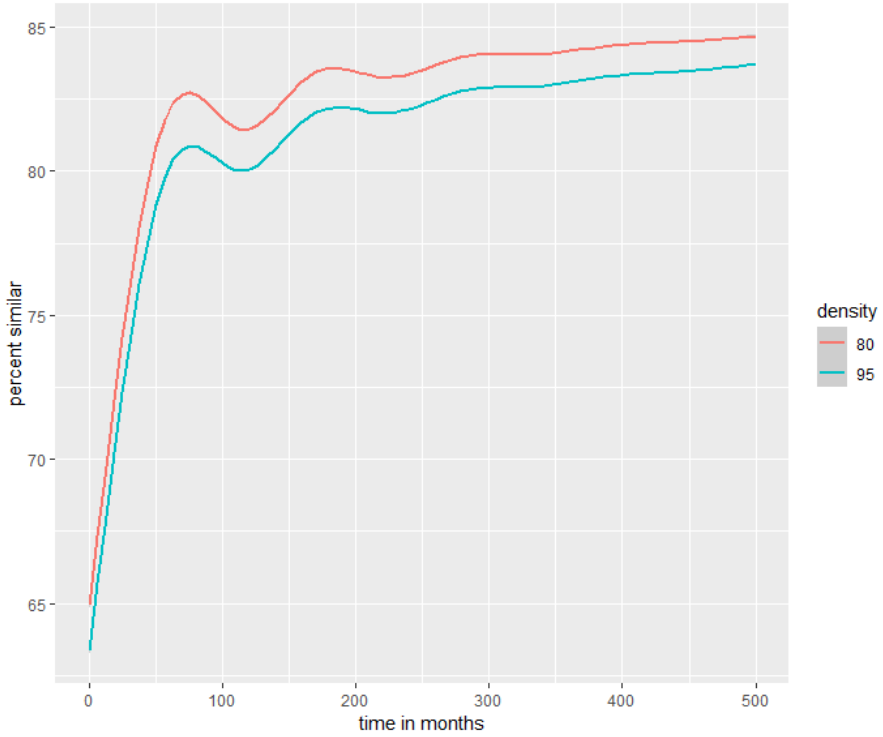

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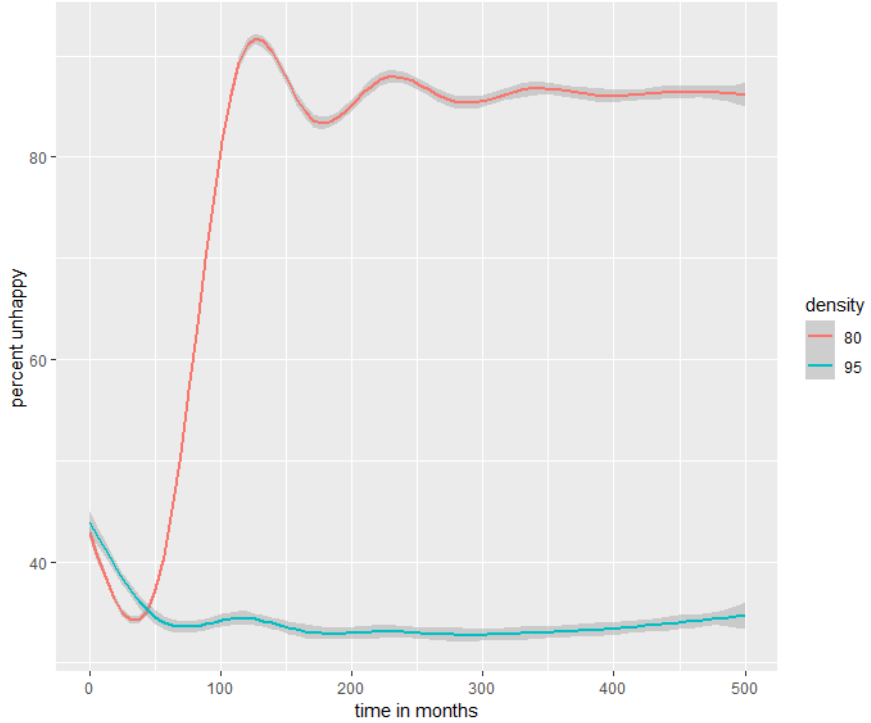

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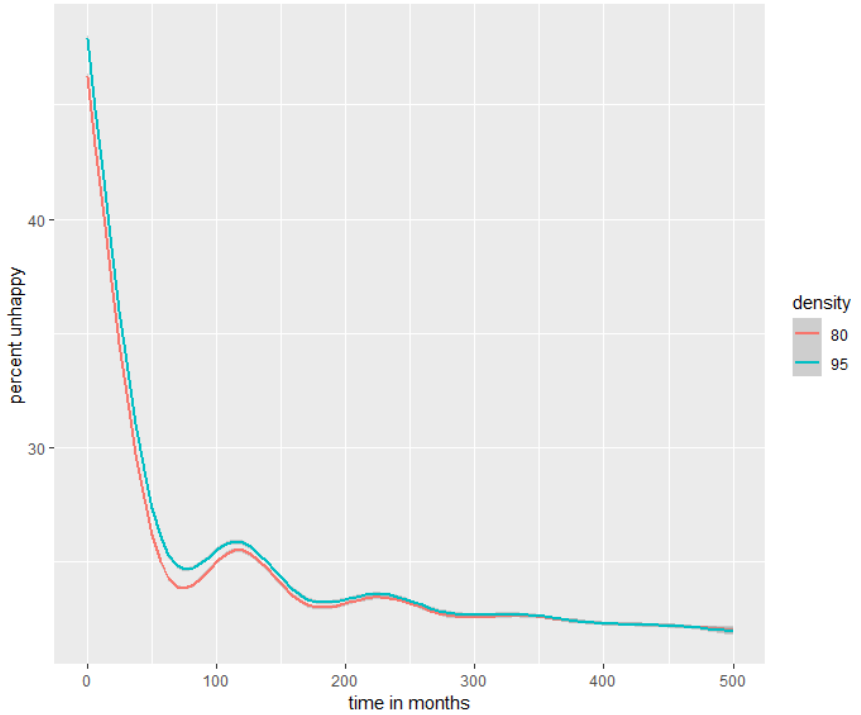

with a minimum of out-group households in the neighborhood

5. Conclusions

- By implementing more realistic behavioural assumptions in the model, residential segregation still occurs, but the process takes significantly longer, and segregation patterns are constantly redistributed across the grid

- with consideration of real empirical distributions of behavioural assumptions measured in surveys, vacancy (density) plays a much more limited role

- With more realistic ABM models, these lose their theoretical character and describe real world processes much better

6. Literature

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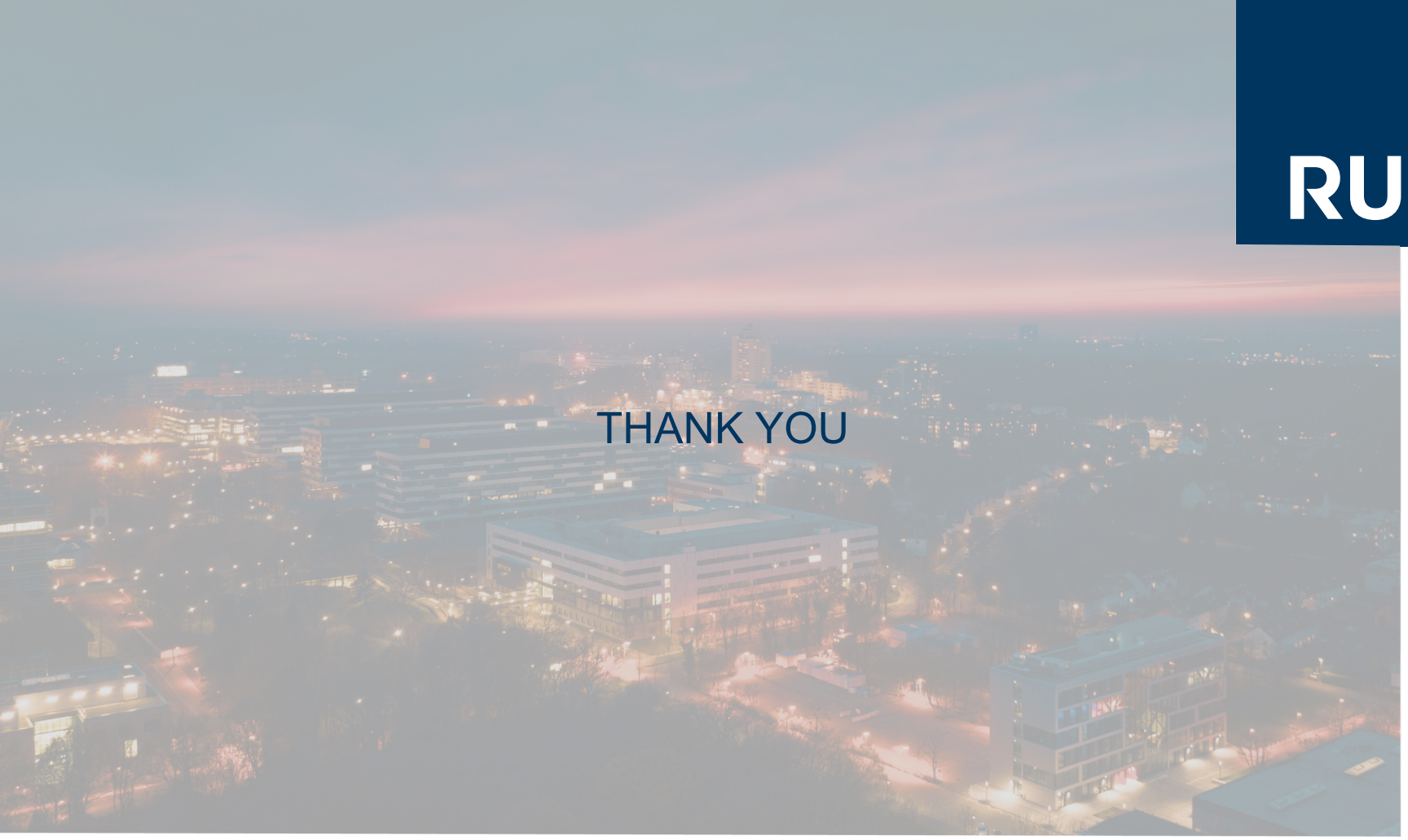
- Zubrinsky, C. L. und L. Bobo (1996). Prismatic metropolis: Race and residential segregation in the city of the angels. *Social Science Research* 25 (4): 335-374.



THANK YOU

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