

Converging Signs: Quantifying Similarity and Difference in Emerging Sign Systems

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How does social experience affect sign form convergence?

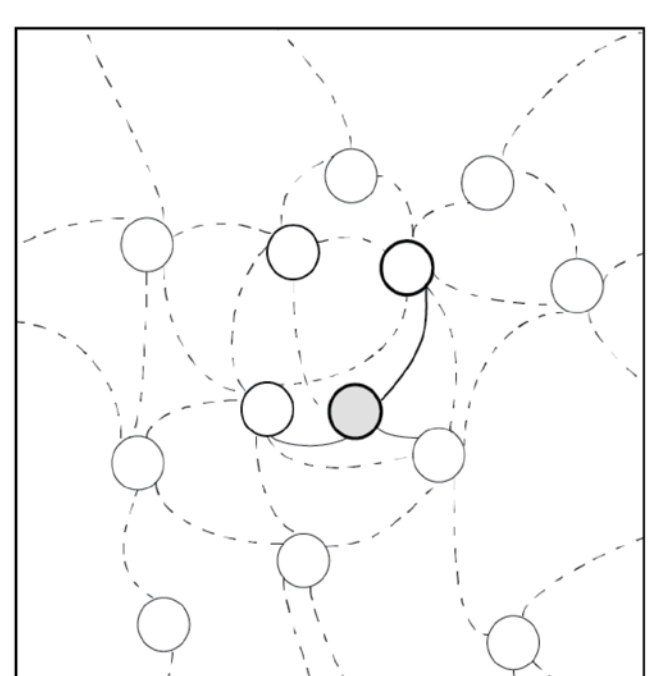
communicative ecology/ social experience (network)
 characteristics of the network of people you typically interact with:
frequency of interaction (daily, weekly, sporadically)
age of communication partners: same age (peers) vs. older/younger
gender of communication partners: same vs. opposite gender
context of interaction (home, school, work)

sign form convergence using the same sign for the same referent

existing studies of form convergence

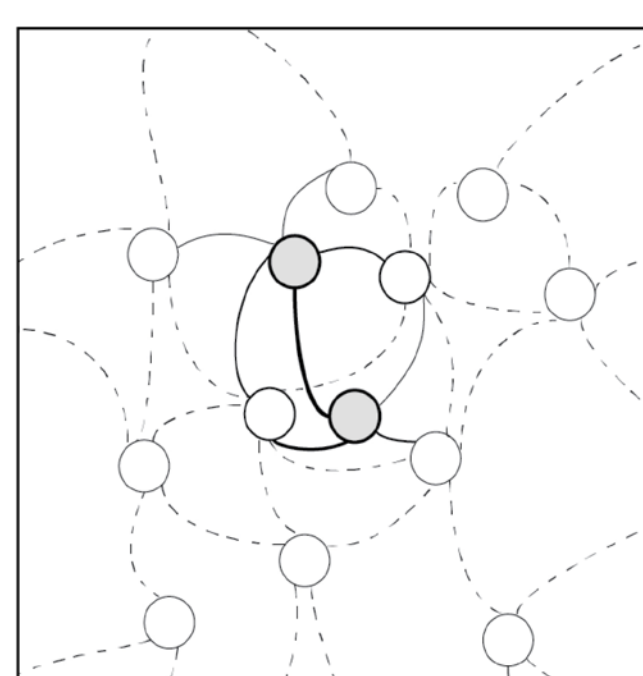
experimental semiotics: networks converge faster when all members interact^{1,2}
computational models: results differ, in some cases richly connected networks converge faster³ in other examples, a sparsely connected network converges faster¹
fieldwork on emerging sign languages: conventionalization lower for adult homesigners from Nicaragua relative to signers of Nicaraguan Sign Language, even after the same amount of time interacting³

typology of social experience



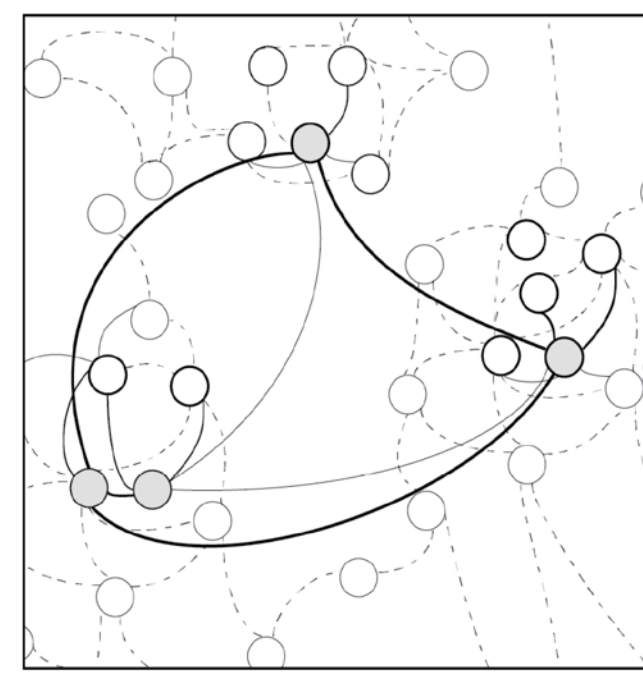
individual homesigners

no deaf relatives or peers



homesigners with deaf relatives

deaf relatives: parents, grandparents, siblings



homesigners with deaf peers

attend school with other deaf students
 also may have deaf relatives

location



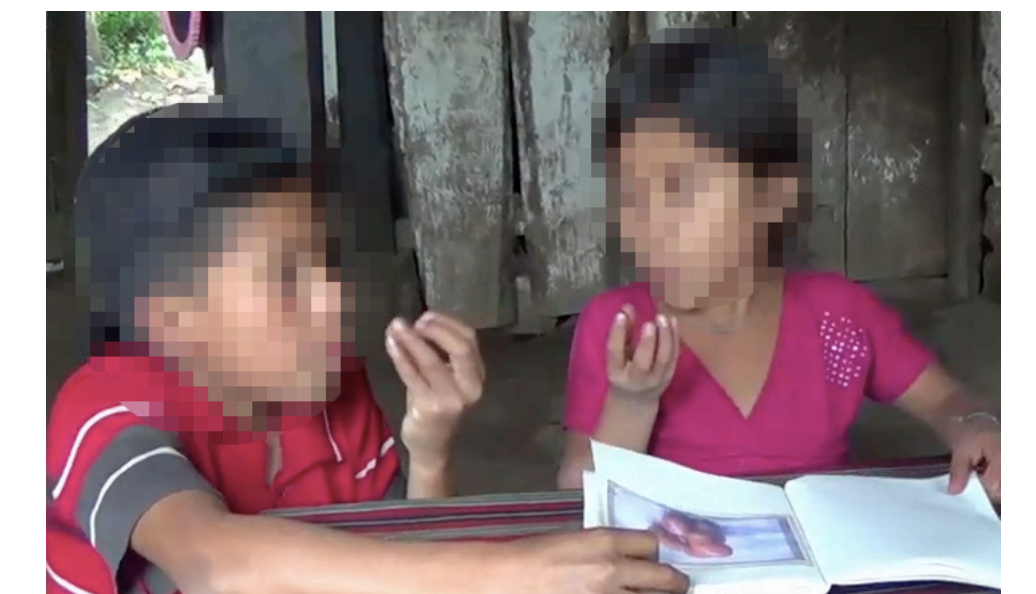
Field site: Nebaj, Guatemala
Population: 100,000+ (municipio)
Spoken Languages: Ixil, Spanish

stimuli



elicitation task with over 60 photos of familiar items from categories including: people; food; animals; vehicles

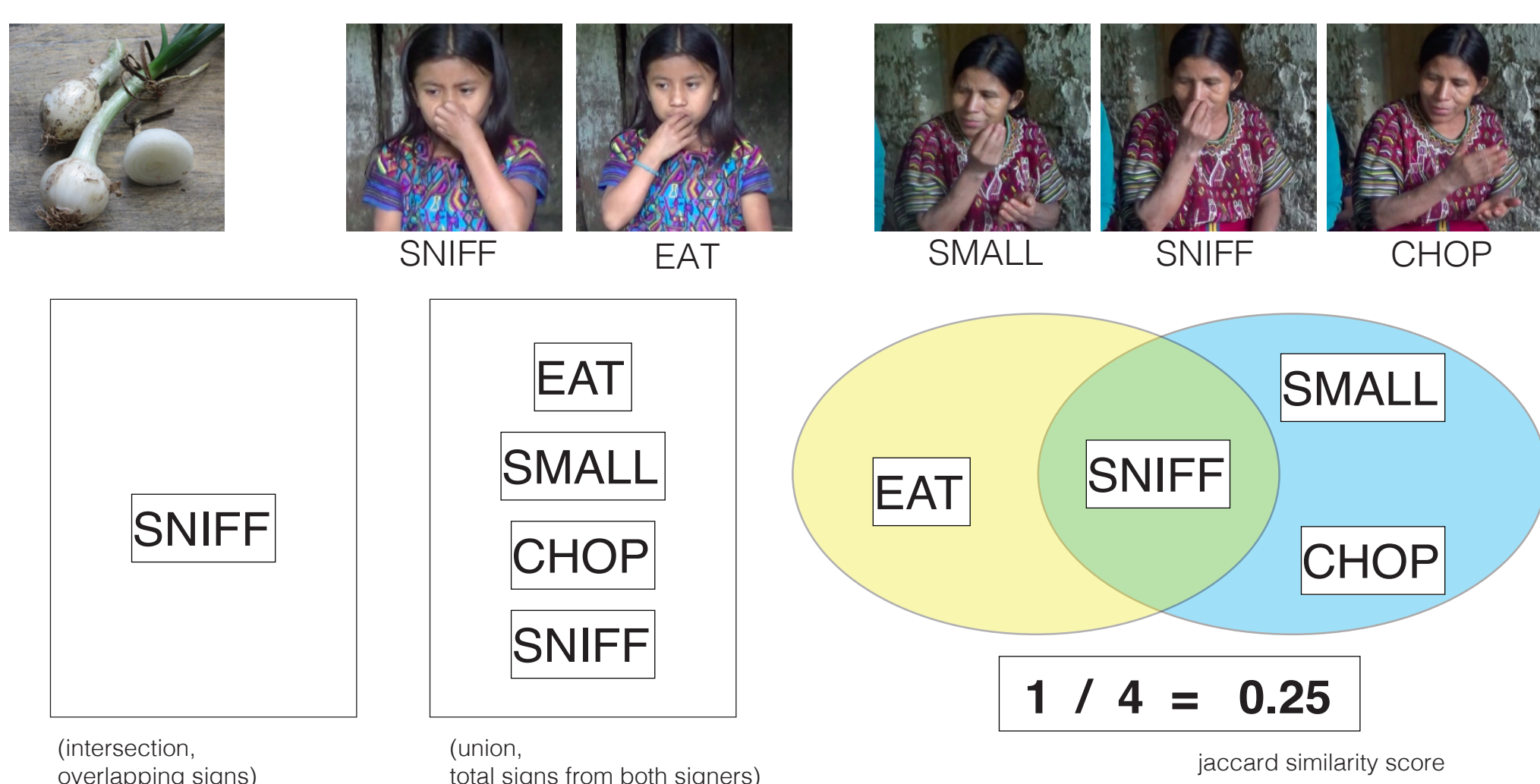
participants



9 deaf child homesigners (ages 7;4 - 13;7) and their communication partners (each other, relatives, friends)

measuring sign form convergence

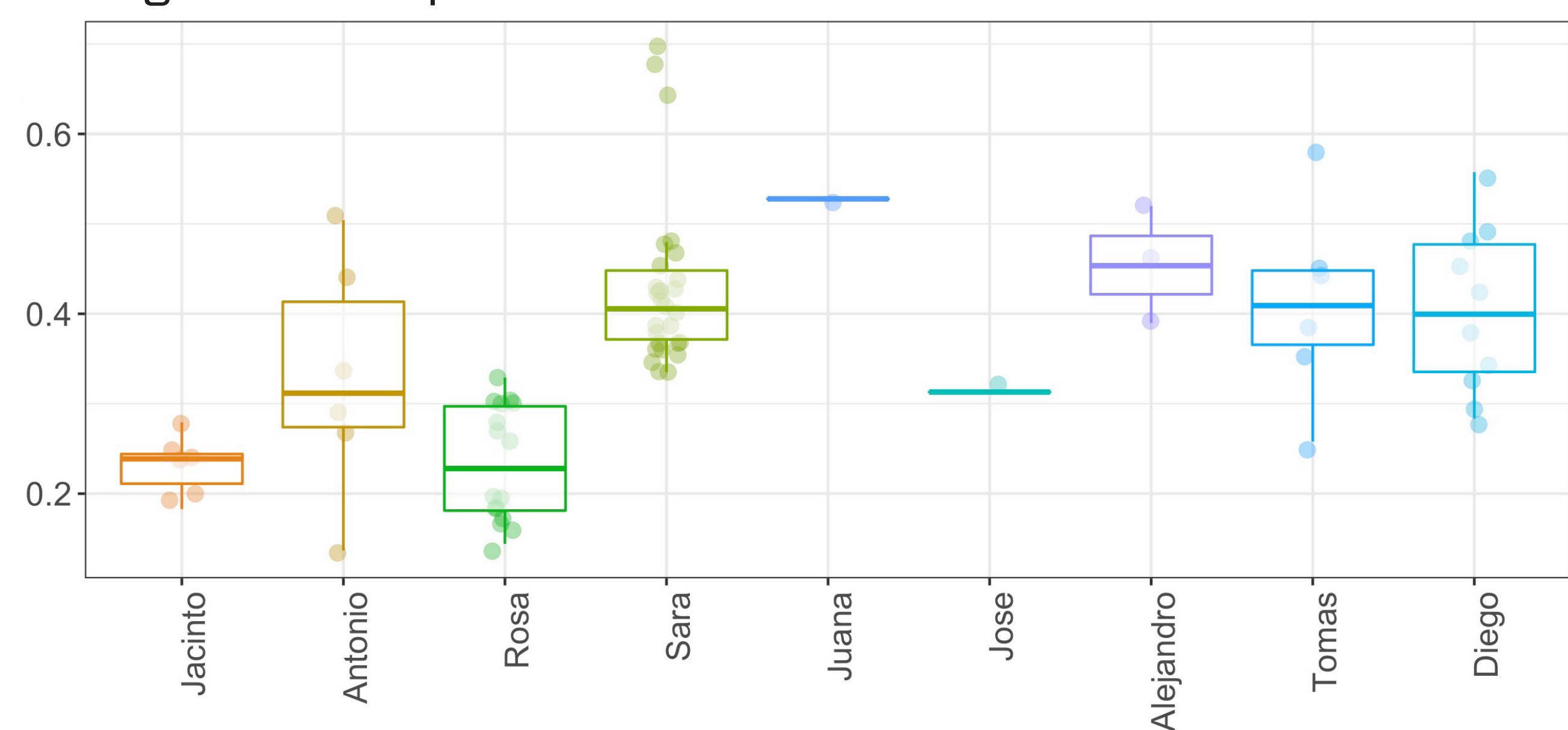
Jaccard similarity coefficient



social experience and convergence

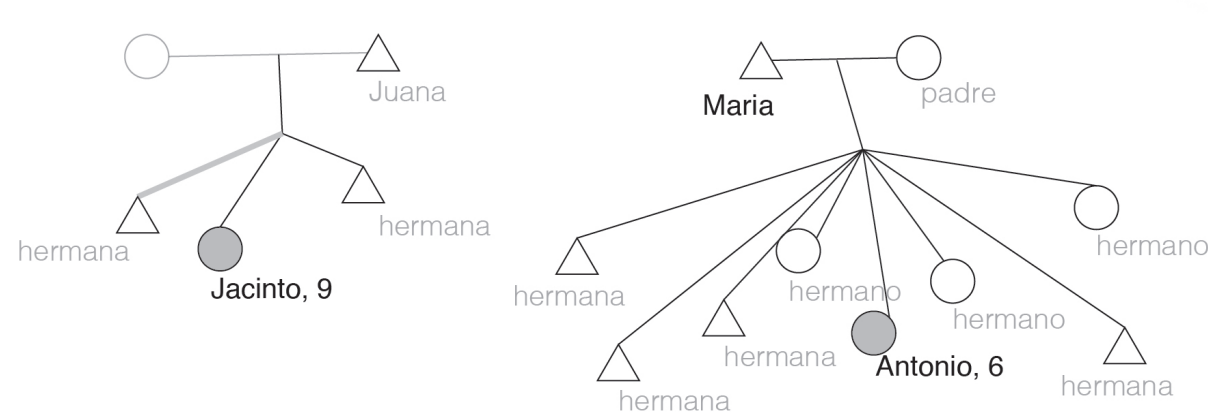
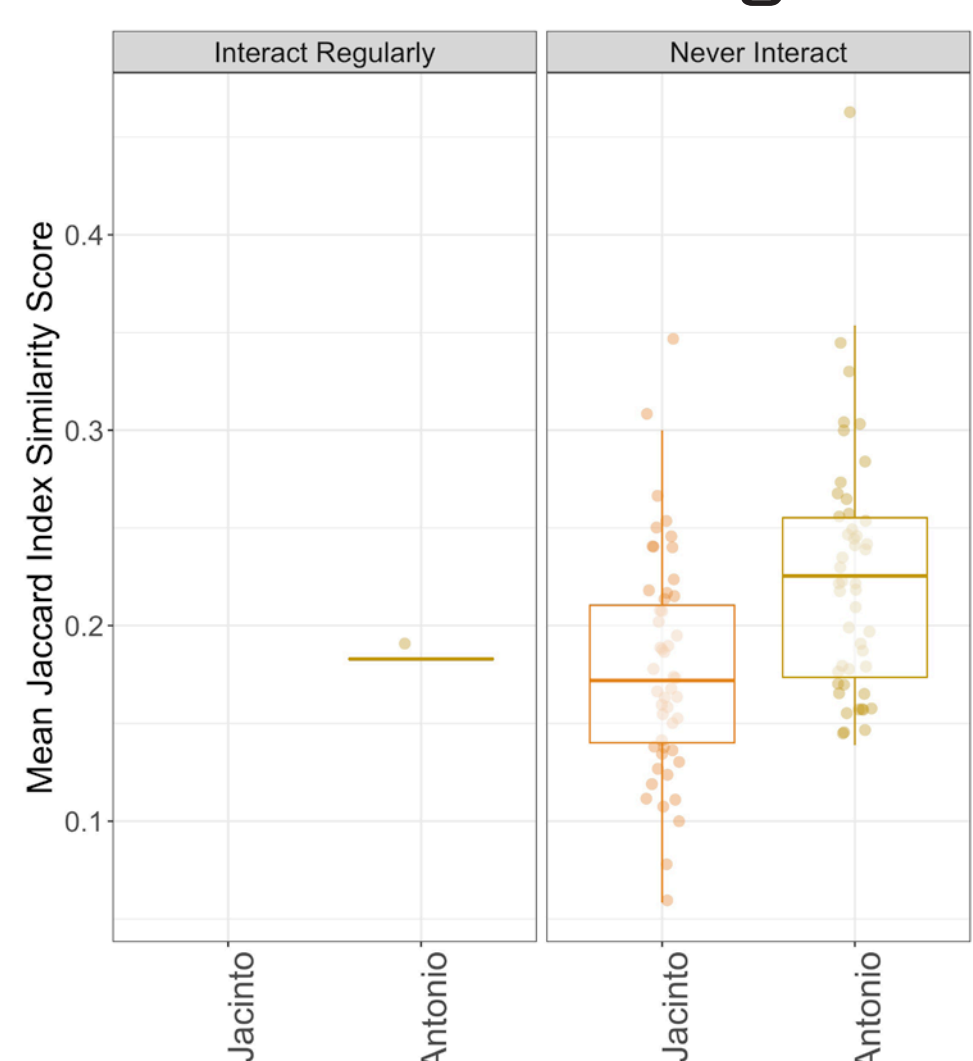
never interact: do you use the same signs as other homesigners who never sign with you?
regularly interact: do you use the same signs as the other homesigners in your network?
longitudinal: do you use the same signs over time?

longitudinal comparisons

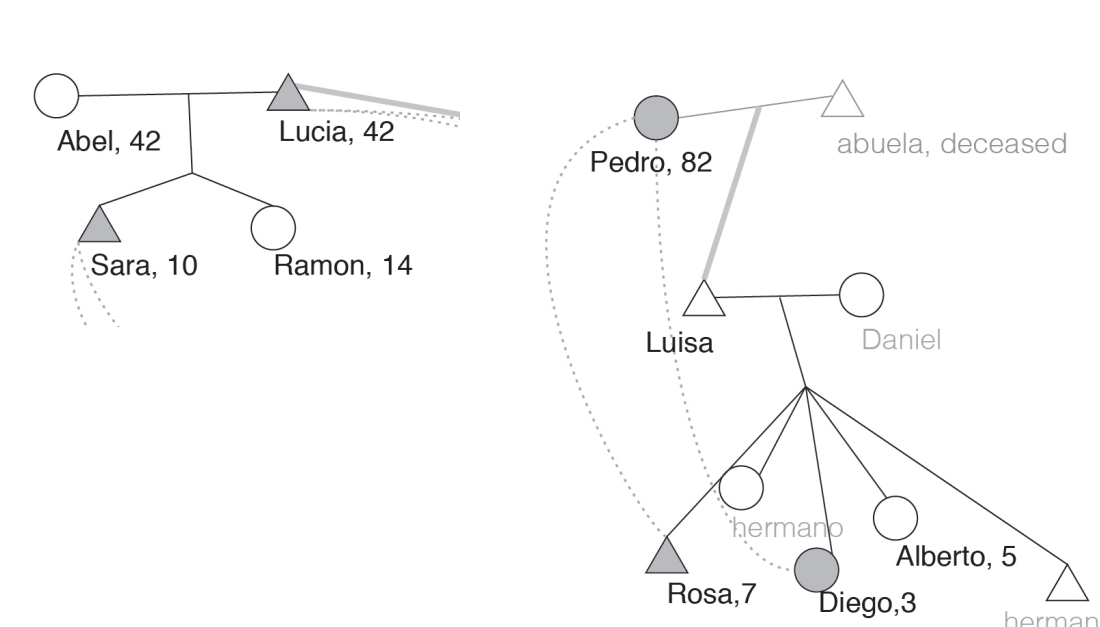
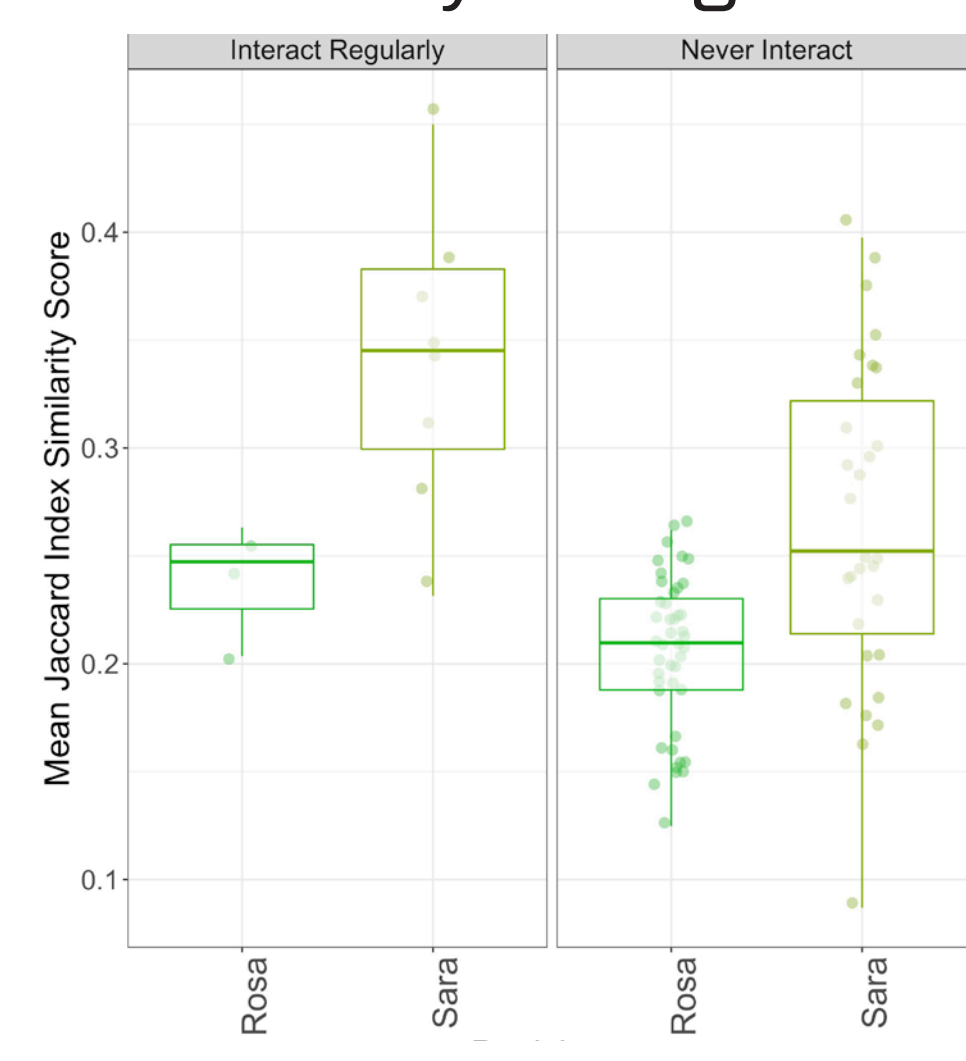


sign form convergence

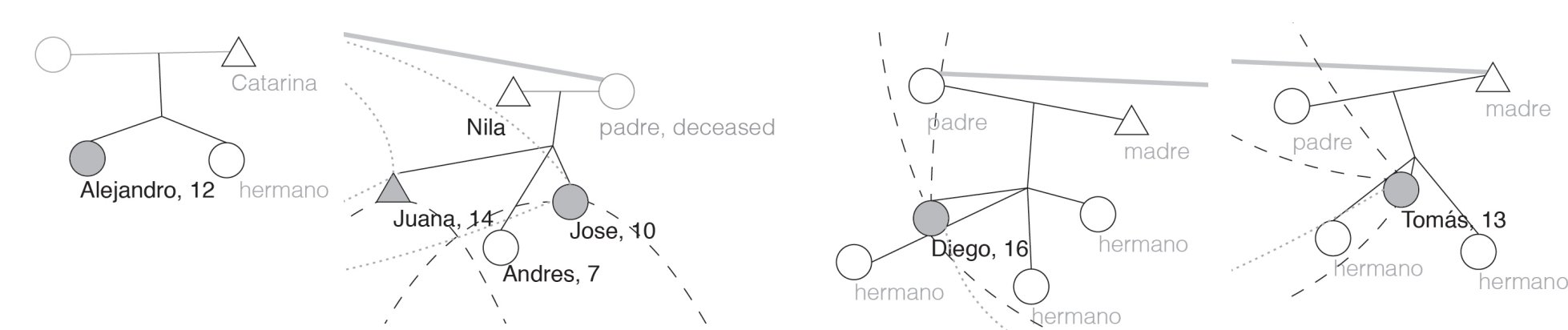
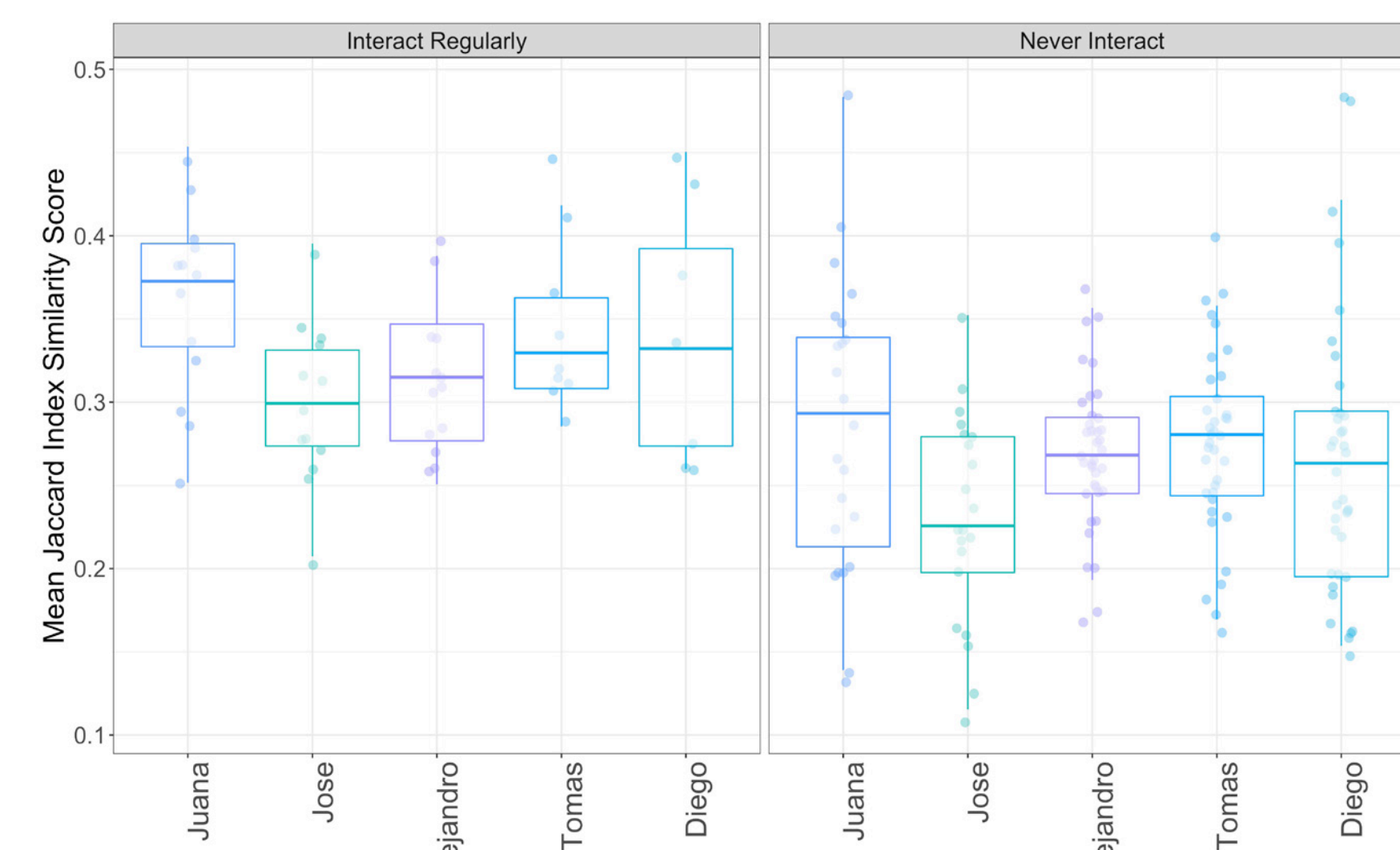
individual ecologies



family ecologies



peer / peer+family ecologies



findings

homesigners in **individual ecologies** have lower levels of convergence than homesigners in other kinds of ecologies
 homesigners in **family ecologies** have variable levels of convergence, this may depend on family size, the age/gender of the older homesigner relative
 homesigners from **family and peer ecologies** have high rates of convergence/consistency when compared with themselves longitudinally
 homesigners from **individual ecologies** are less consistent with themselves over time

Acknowledgements

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References

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- [2] Fay, N., Garrod, S., Roberts, L., & Swoboda, N. (2010). The interactive evolution of human communication systems. *Cognitive Science*, 34, 351-386.
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