

Sticks, leaves, buckets, and bowls: Distributional patterns of children's at-home object handling in two subsistence societies

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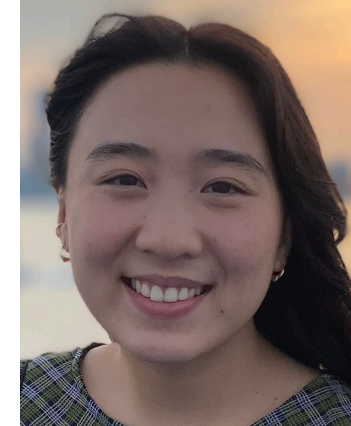
Humbertina Gómez-Pérez



Y:aaw:a Pikwa



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Emily Chan



Mary Elliott



Penny Brown



Steve Levinson



Lizzie Mickiewicz



Anapaula Silva Mandujano



Mara Duquette



Elika Bergelson



Ine Alvarez van Tussenbroek



Cielke Hendricks



Will Fisher



Shawn Tice

First-person object handling experience



7mo, Tzeltal Mayan



11mo, Rossel Papuan



11mo, NY American

First-person object handling experience



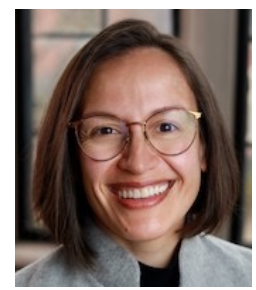
7mo, Tzeltal Mayan
cardboard packaging



11mo, Rossel Papuan
ball (carved from buoy)



11mo, NY American
stuffed animal



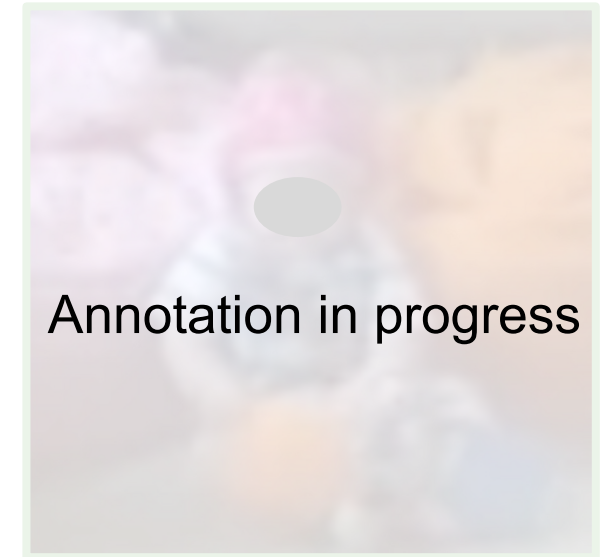
First-person object handling experience



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Participating communities



Object handling provides learning opportunities

- Perceptual properties
- Affordances
- Category membership
- Labels & other associated language

Baumgartner & Oakes, 2011; Bornstein & Mash, 2010; Clerkin & Smith, 2022; Rachwani et al., 2020; Slone et al., 2019

Object handling changes with age

- Motor development
- Permitted object access

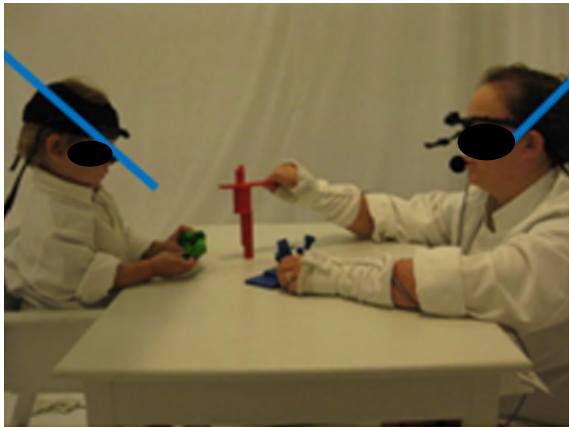
Object handling varies across cultures

- Available objects
- Daily routines
- Child carrying practices

Adolph et al., 2010; Arnold et al., 2012; Brown & Casillas, 2021; Casillas et al., 2020, 2021; Karasik et al., 2018

Current studies: Daylong object handling in two subsistence communities

4min (in-lab, US)



Yu & Smith, 2013

~2hr (at-home, US)



Herzberg et al., 2022

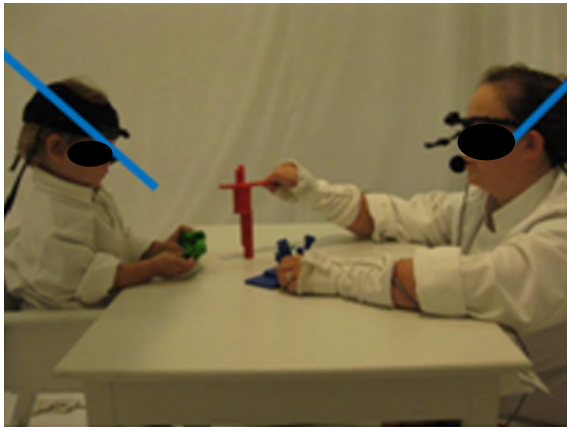
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Swirbul et al., 2022

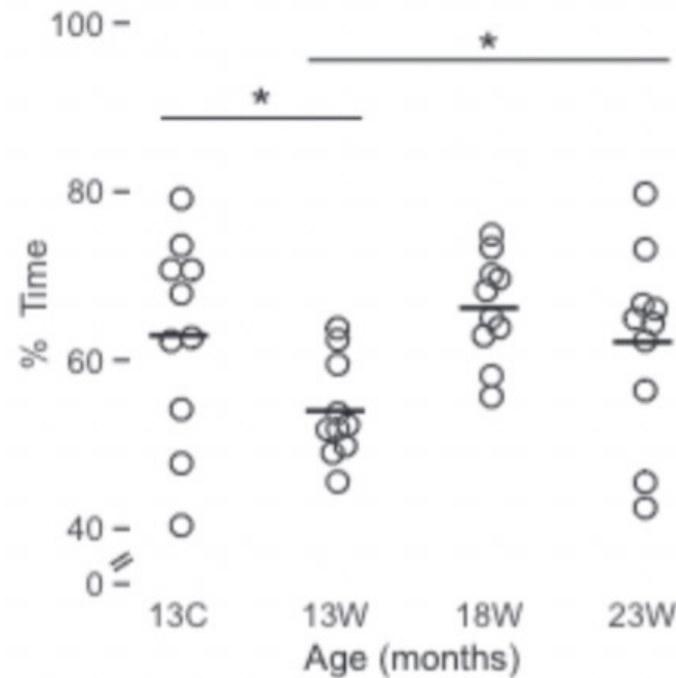
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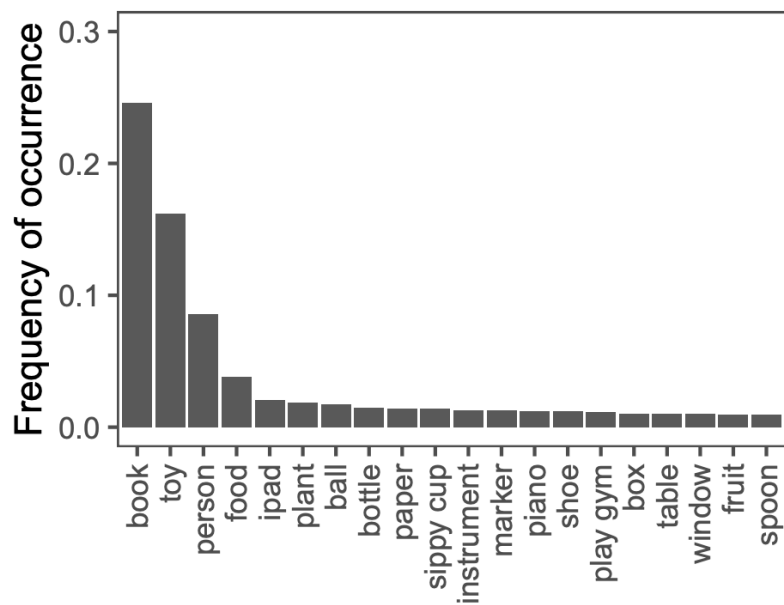
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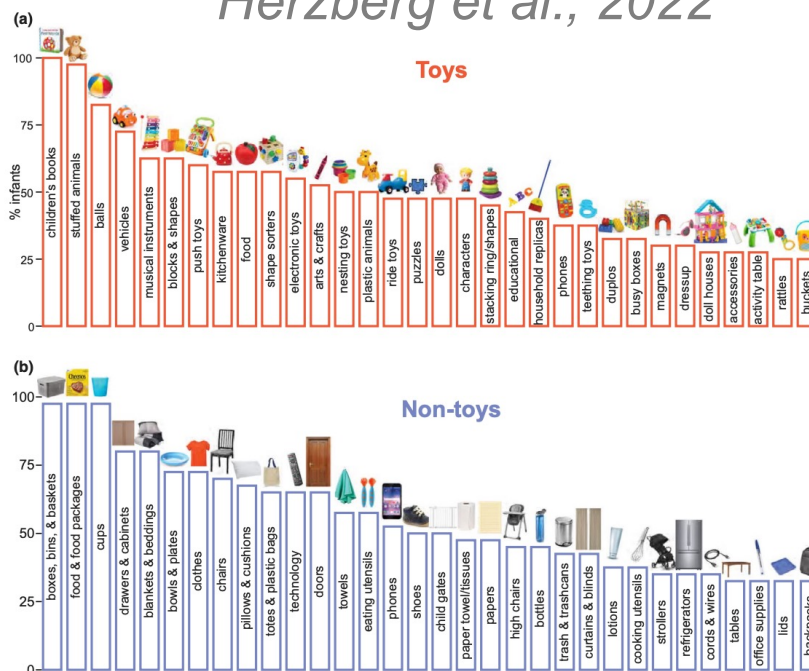
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Current studies: Daylong object handling in two subsistence communities

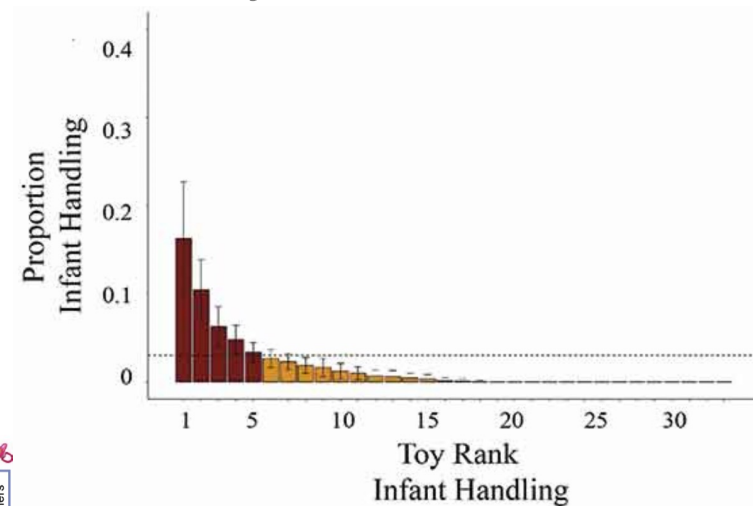
Long et al., 2021



Herzberg et al., 2022



Karmazyn-Raz & Smith, 2022



Participating communities



Tzeltal Mayan
Chiapas, Mexico



Rossel Papuan
Milne Bay Province,
Papua New Guinea

Participating communities

Differences

- Market integration
- Child carrying practices
- Day-to-day activities



Rossel Papuan
Milne Bay Province,
Papua New Guinea

Tselal Mayan
Chiapas, Mexico



Similarities

- Rural, swidden horticulturalist
- Housed in multi-generation family complexes

Photo sampling: Chestcams



Narrative Clip 1
camera



Photojojo "super"
fisheye lens
(180° view)

Photo sampling: Chestcams



Narrative Clip 1
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35mo, Tzeltal Mayan

Photo sampling: Chestcams



Narrative Clip 1
camera



Photojojo "super"
fisheye lens
(180° view)

81 children

- 0 – 48mo, $M = 21\text{mo}$
- 38 Tselal Mayan
- 43 Rossel Papuan

8 – 9 recorded hours/child

2 – 4 photos/minute

>111k total photos

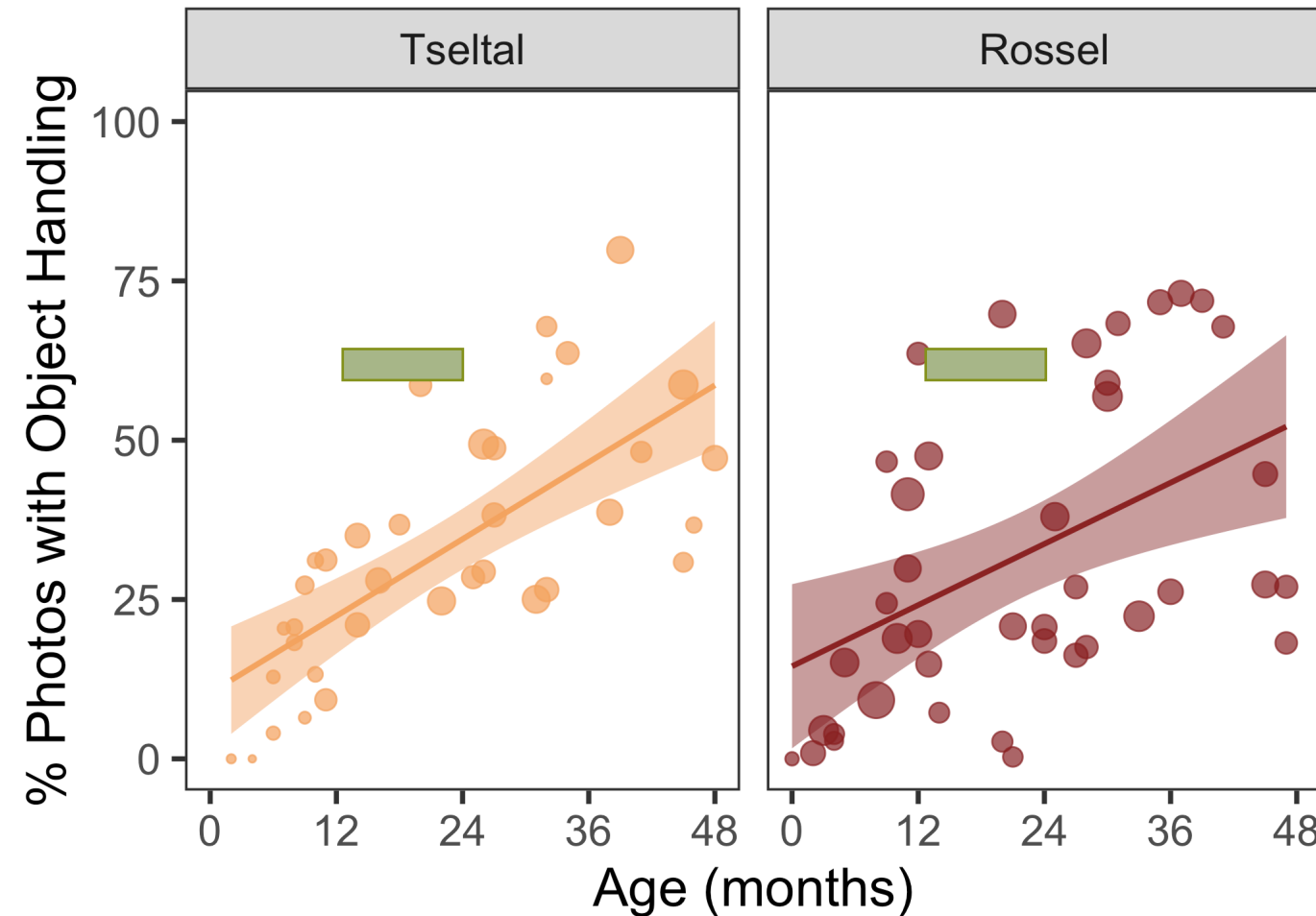
Study 1: How frequent is object handling?

Study 2: What are the targets of object handling?

Study 1: How frequent is object handling?

$N = 81$, $M = 490$ photos with hands (1 – 1,466)

Study 1: How frequent is object handling?



- $M = 32.3\%$
- No effect of cultural context
- Significant increase with age

*Dot sizes correspond to # of usable photos

Herzberg et al., 2022;
Swirbul et al., 2022

Study 1: How frequent is object handling? ~1/3 of the recorded day

Study 2: What are the targets of object handling?

Study 1: How frequent is object handling?

Study 2: What are the targets of object handling?

Study 2: What are the targets of object handling?

- Categories
- Types
- Tokens
- Effects of cultural context & age

Total >17k photos

$N = 77, M = 219 (1 - 631)$

Categories

Mealtime Tool

Consumable

Work Tool

Toy

Clothing

Immovable

Natural

Synthetic

Categories: Mealtime Tool



Types

Types: Bowl



Tokens



bowl1



bowl2



bowl3

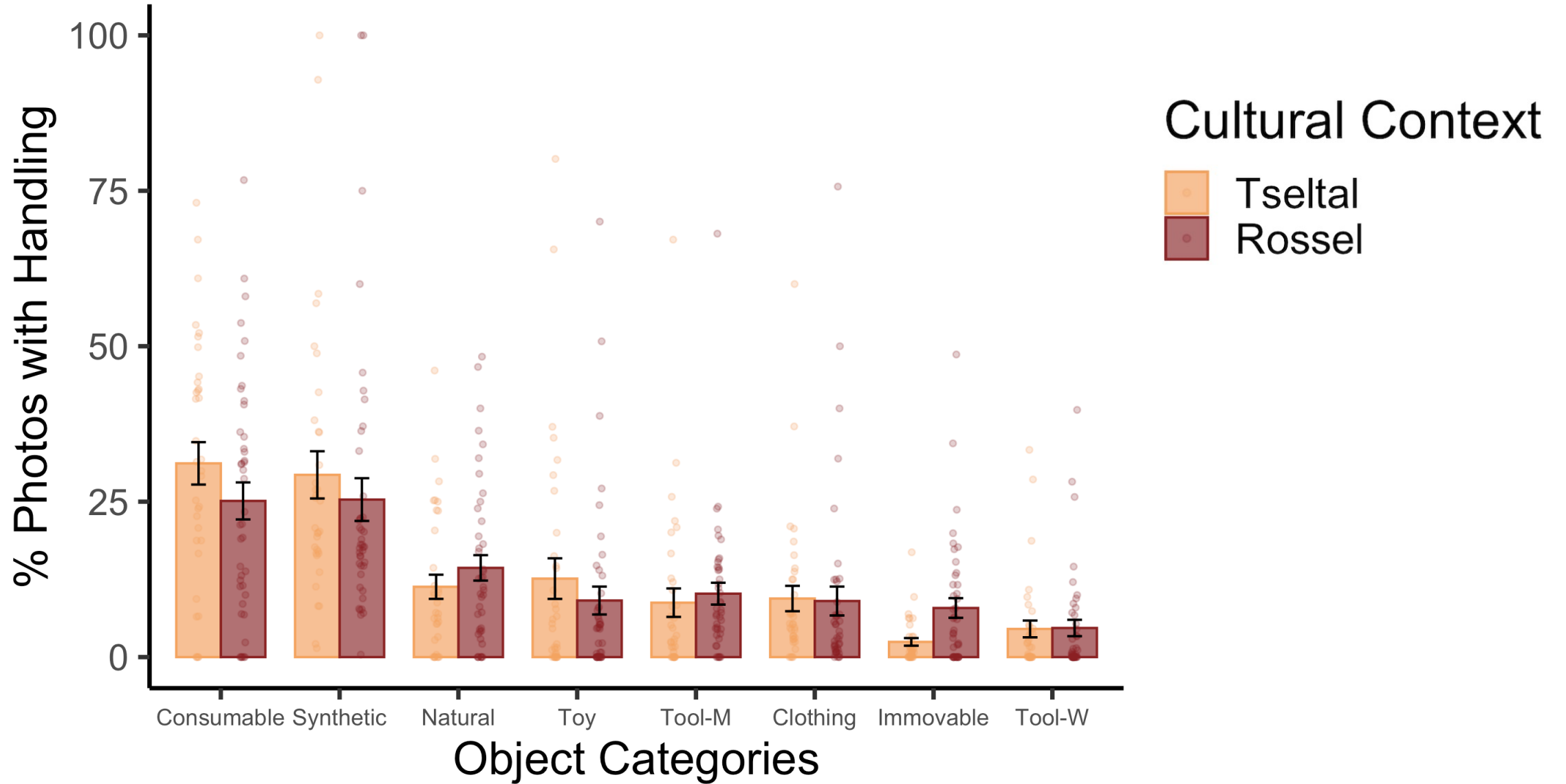
Highlights

- **Categories:** Stable over age and across cultural contexts
- **Types:** Right-skewed distribution at the community and individual level
- **Tokens:** Cross-community differences

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Categories

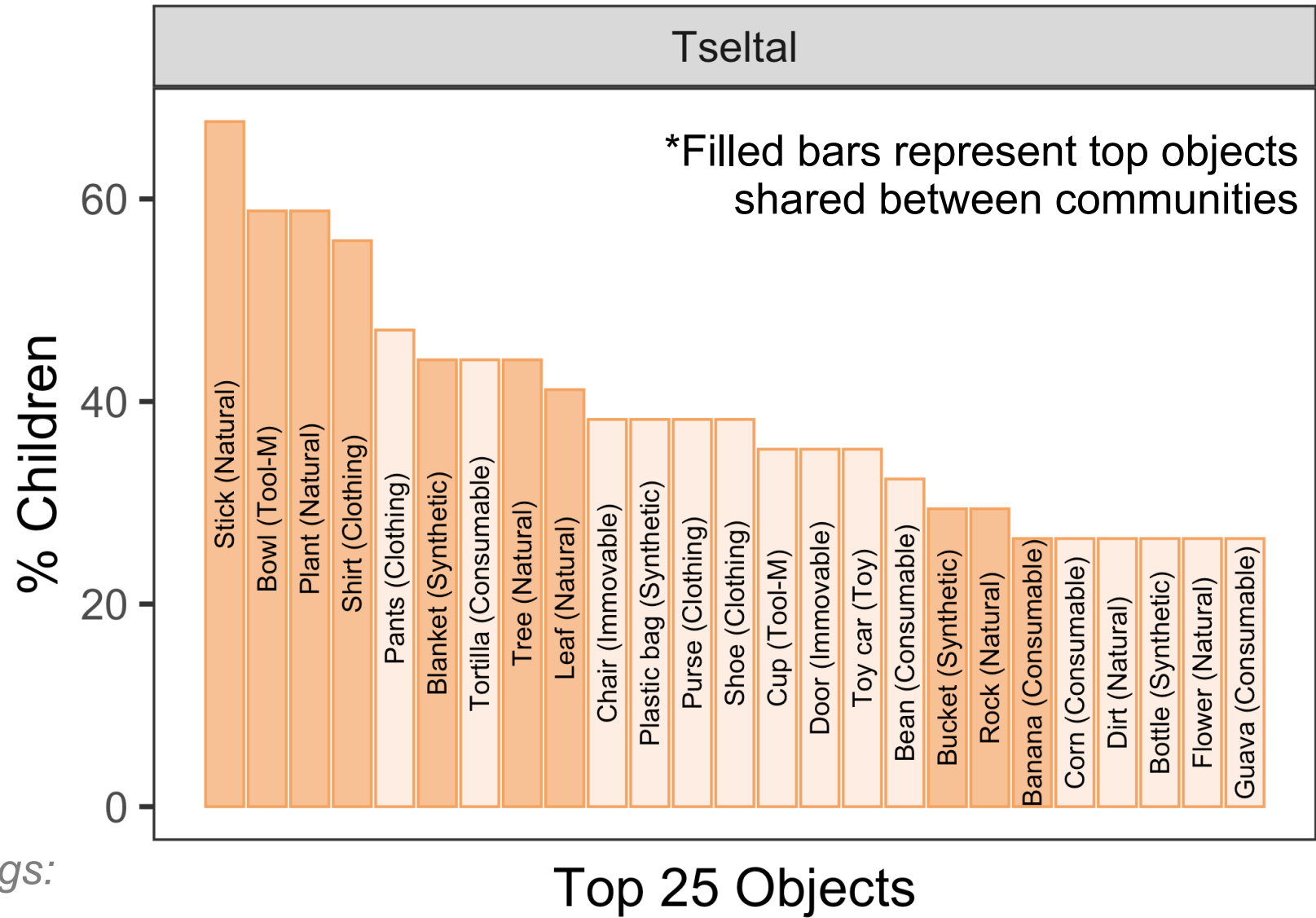


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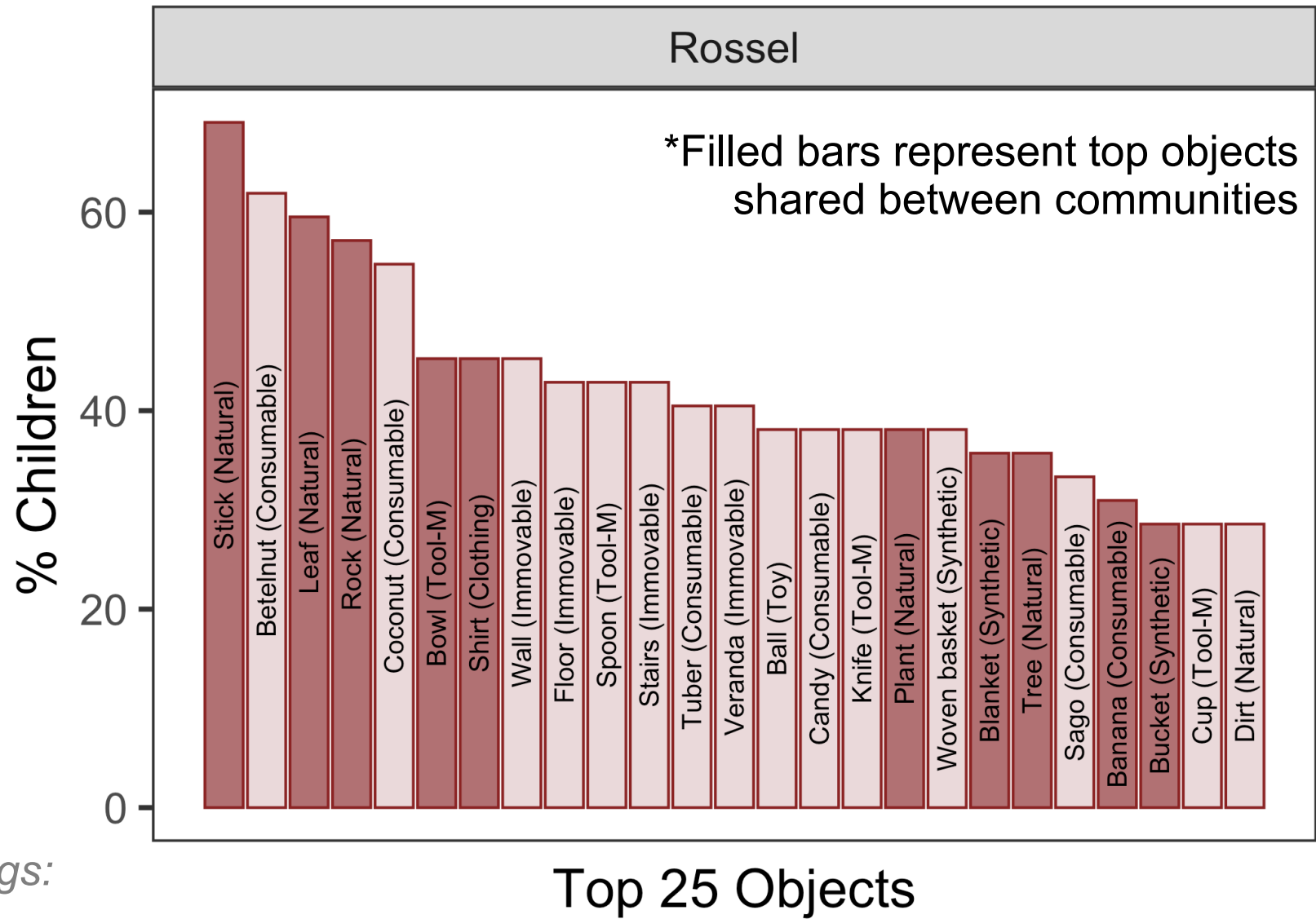
Community level



*Trend consistent with US 2hr recordings:
e.g., Herzberg et al., 2022*

Types

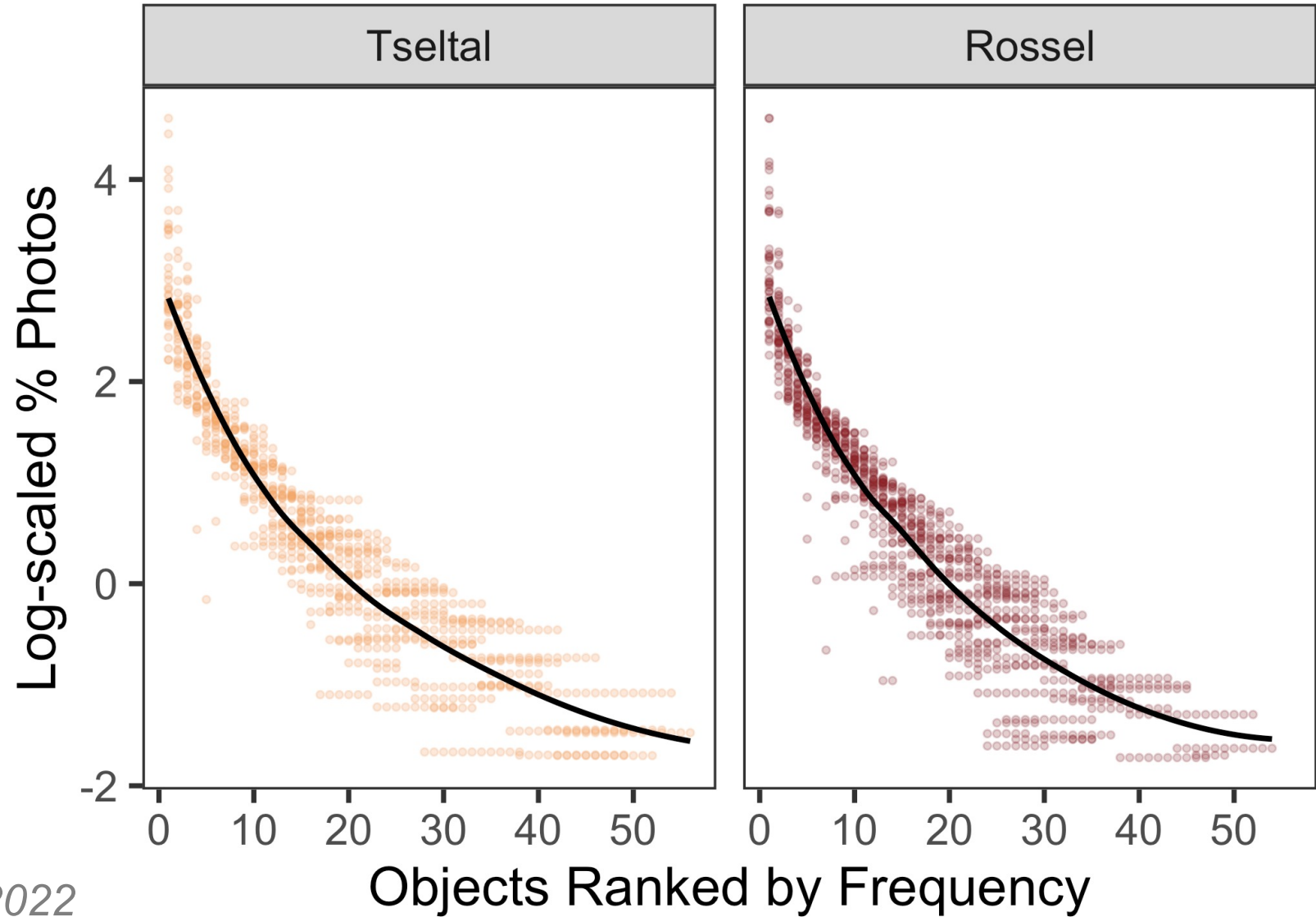
Community level



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Types

Individual level



Trend consistent with US 10min in-lab recordings: e.g., Karmazyn & Smith, 2022

Highlights

- **Categories:** Stable over age and across cultural contexts
- **Types:** Right-skewed distribution at the community and individual level
- **Tokens:** Cross-community differences

Tokens x Categories

Object Tokens/Hour

15
10
5

Consumable Synthetic Natural Toy Tool-M Clothing Immoveable Tool-W

Object Categories

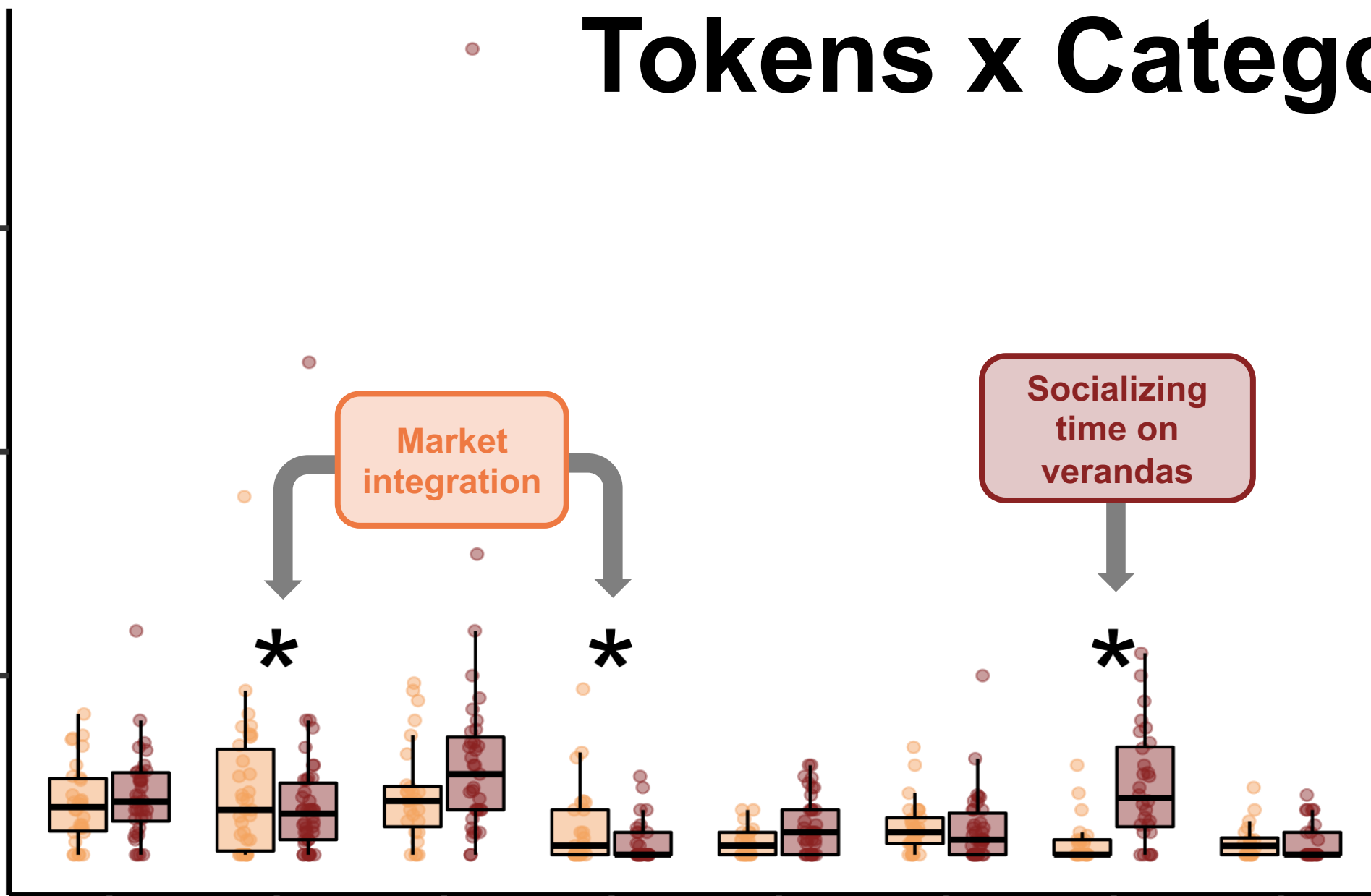
Market integration

Socializing time on verandas

*

*

*



Objects as insights into children's worlds

Stable

Variable

Objects as insights into children's worlds

Stable

- Overall category prevalence
- Right-skewed distributions

Variable

Herzberg et al., 2022; Karmazyn-Raz & Smith, 2022; Swirbul et al., 2022; Zipf, 1965; many others

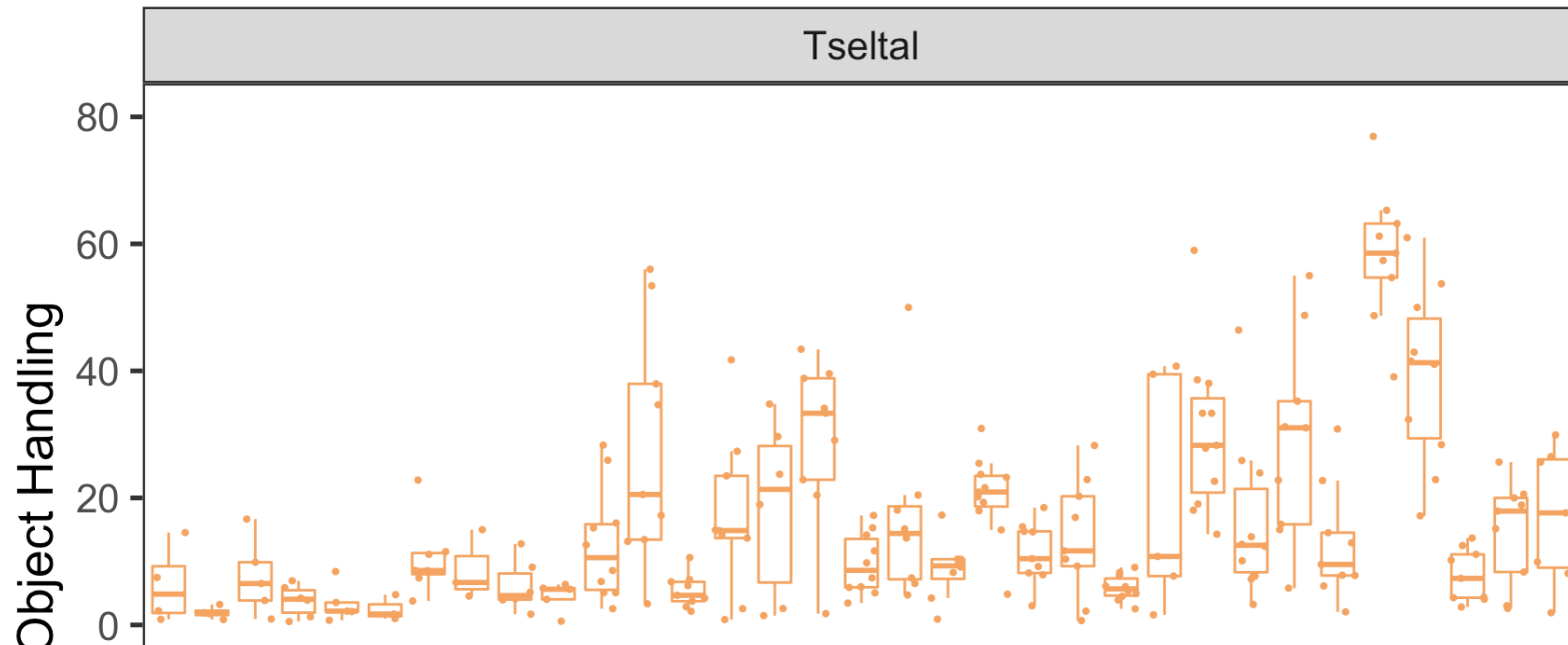
Objects as insights into children's worlds

Stable

- Overall category prevalence
- Right-skewed distributions

Variable

- Rate of object handling
- Unique types/tokens



~2hr (at-home, US)



Swirbul et al., 2022

~10min (at-home, US)

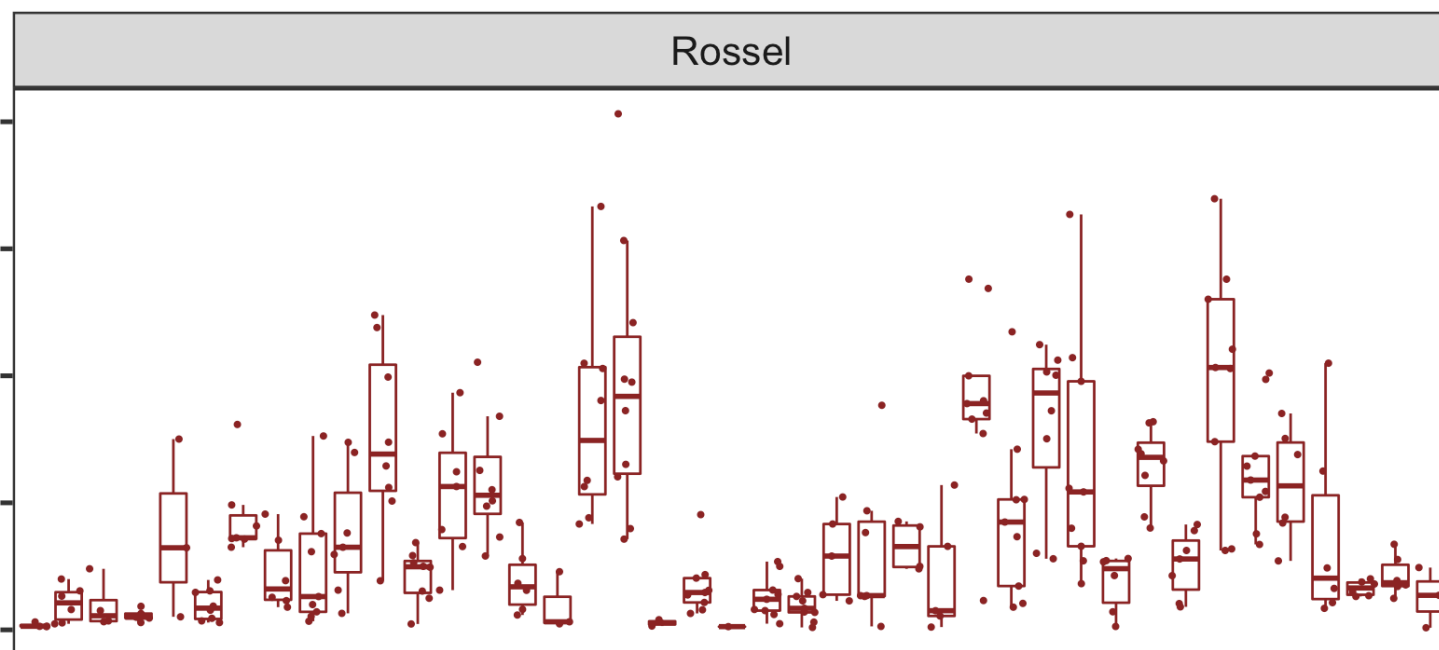


Clerkin & Smith, 2022

~2hr (at-home, US)



Herzberg et al., 2022



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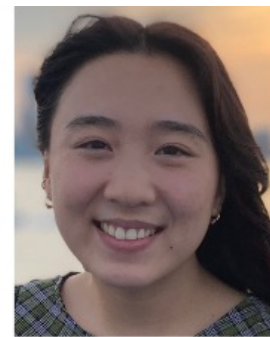
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Thanks!