Privacy Heuristics: How Users Manage Complex Contexts when Evaluating Mobile App Requests

Amit Rechavi
Tel Aviv University

Eran Toch
DLI@Cornell Tech
Tel Aviv University

Jason Hong
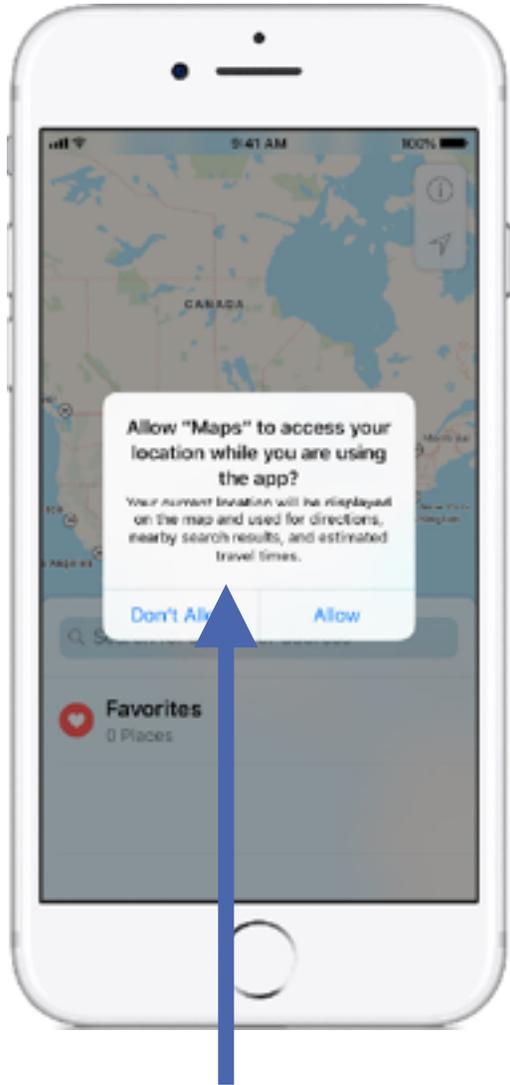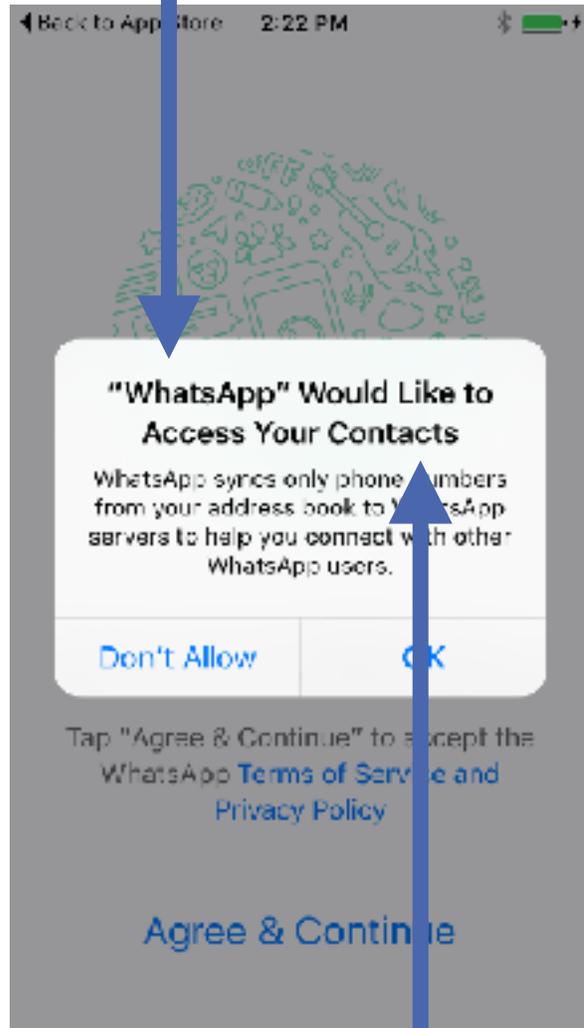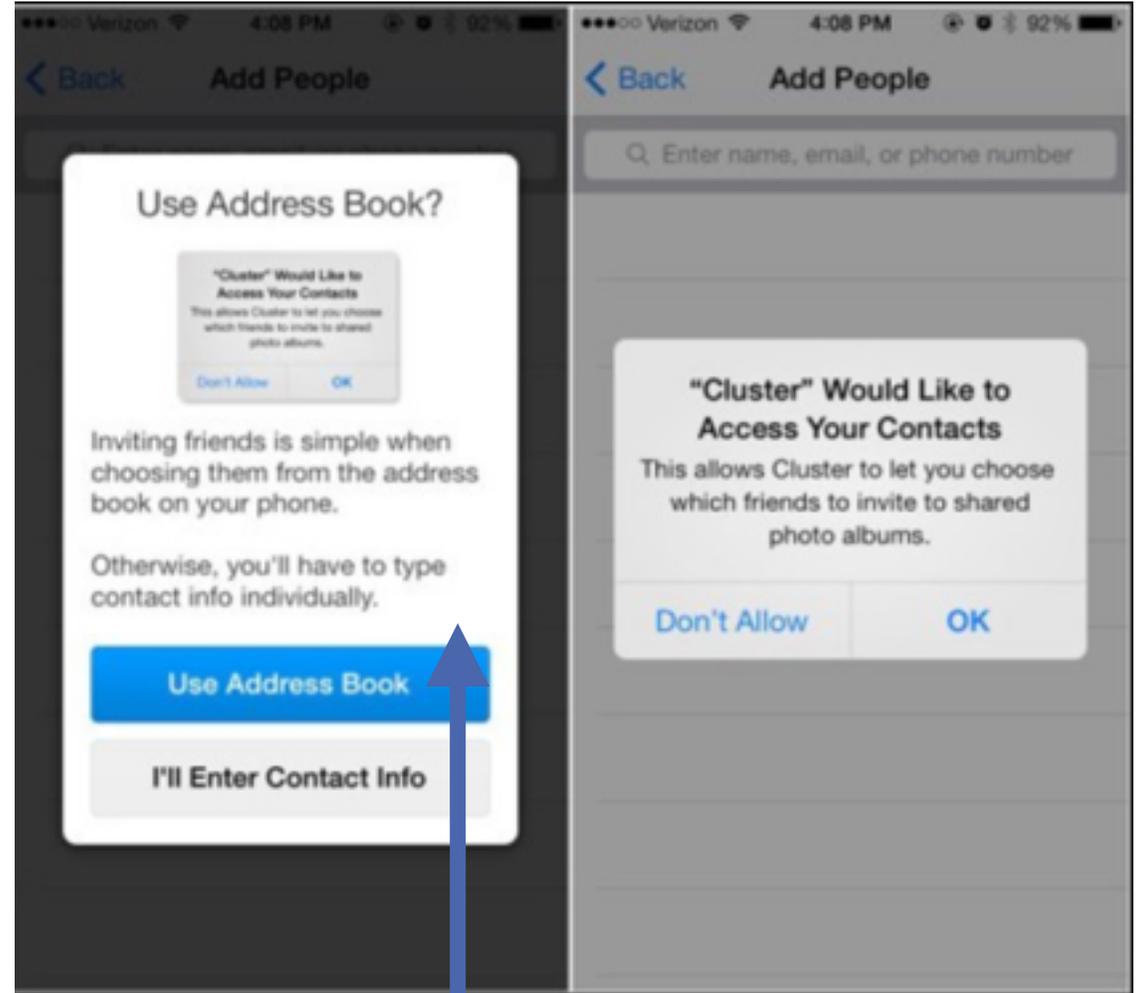Carnegie Mellon University
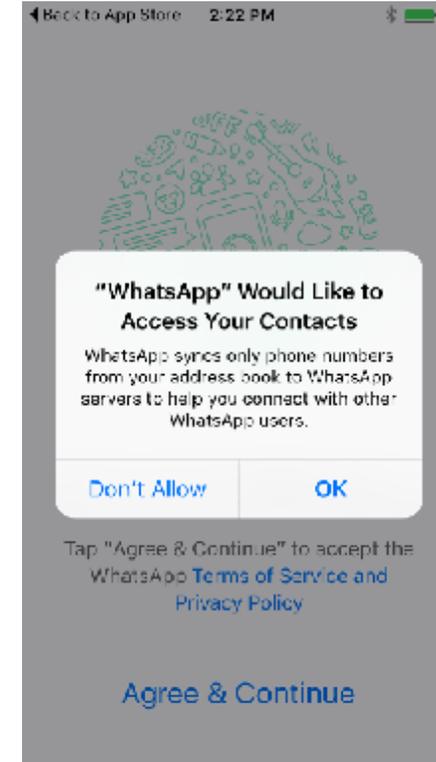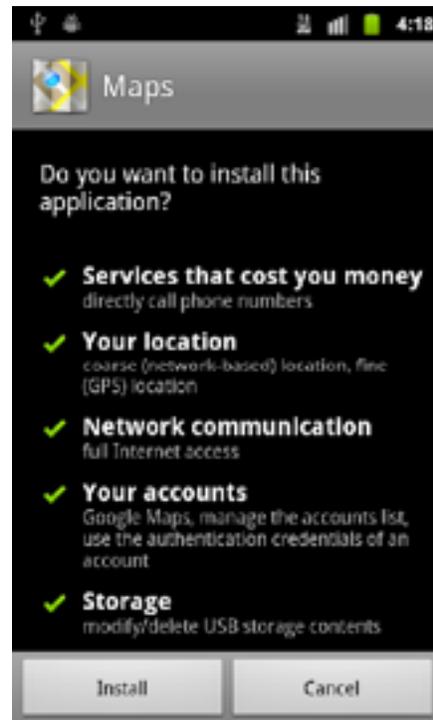
Funding: DARPA

Actors

Transmission Principle

Information Type

Contexts

3

Permission Interfaces

Permission interfaces have become better (compare Felt et al. 2011, Felt et al., 2012 to Wijesekera et al., 2015, Wijesekera et al., 2018)

Understanding Users

- App management user interfaces can have the potential to allow social contextual norms to form and change

- We know context matters to users (Martin & Nissenbaum, 2016; Martin & Shilton, 2016; Shvartzshnaider et al. 2016)

- But we need to understand how users form normative decisions around **complex** contexts

Type of recipient

"WhatsApp" Would Like to Access Your Contacts

WhatsApp syncs only phone numbers from your address book to WhatsApp servers to help you connect with other WhatsApp users.

Don't Allow   OK

Tap "Agree & Continue" to accept the WhatsApp Terms of Service and Privacy Policy

Agree & Continue
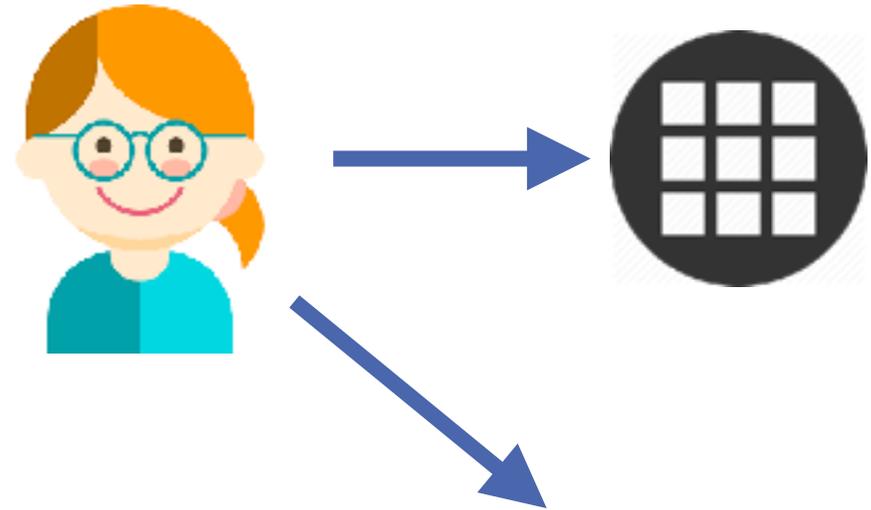
Purpose   Information

Methodology

- Using an existing 2012 dataset of 800 Amazon Mechanical turkers surveys about 1,200 applications

- Participants were presented with a scenario that included actual apps and permissions
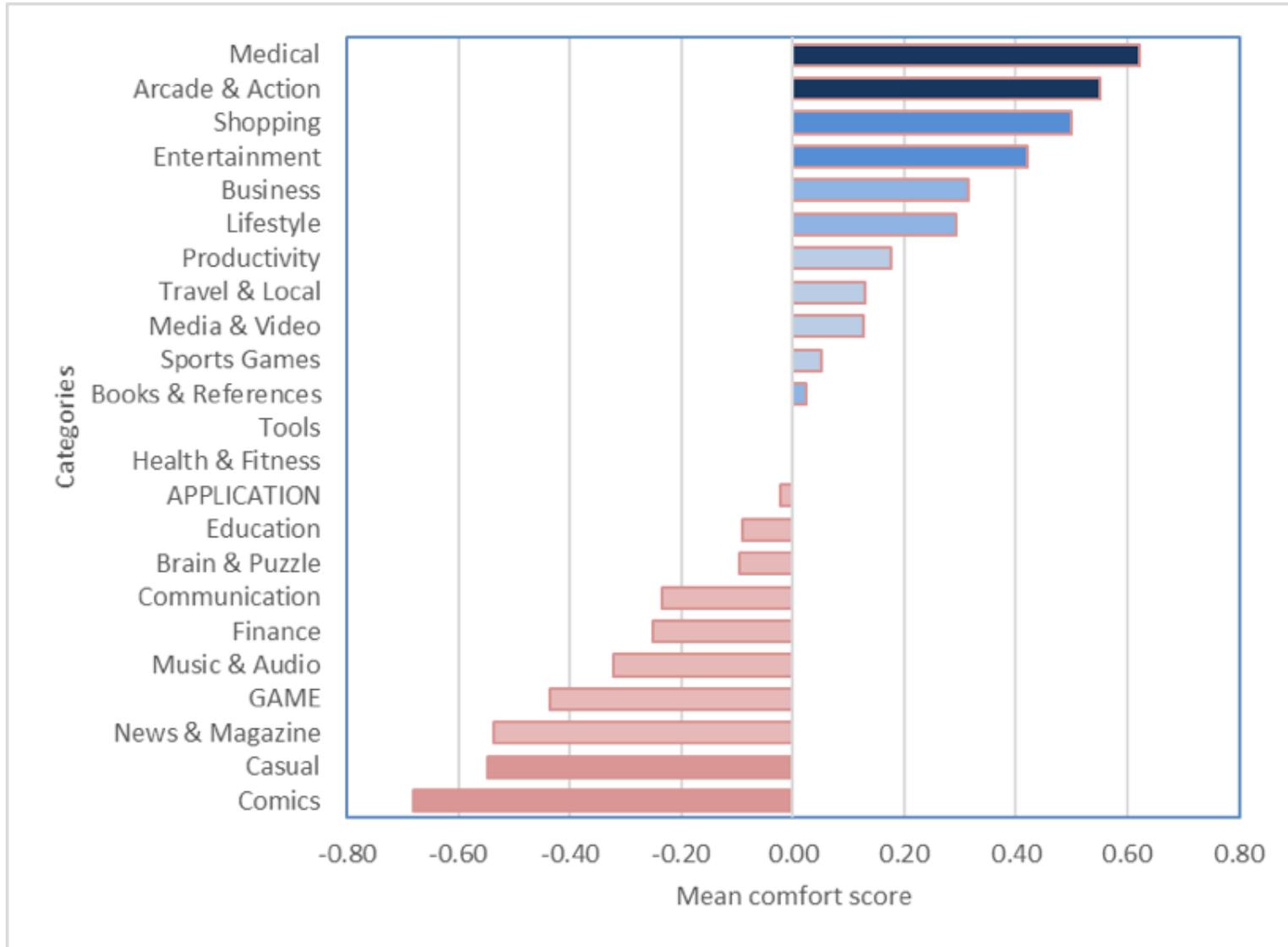
The app (name, pictures, description, category)

Permission type (precise location, contacts, ...)
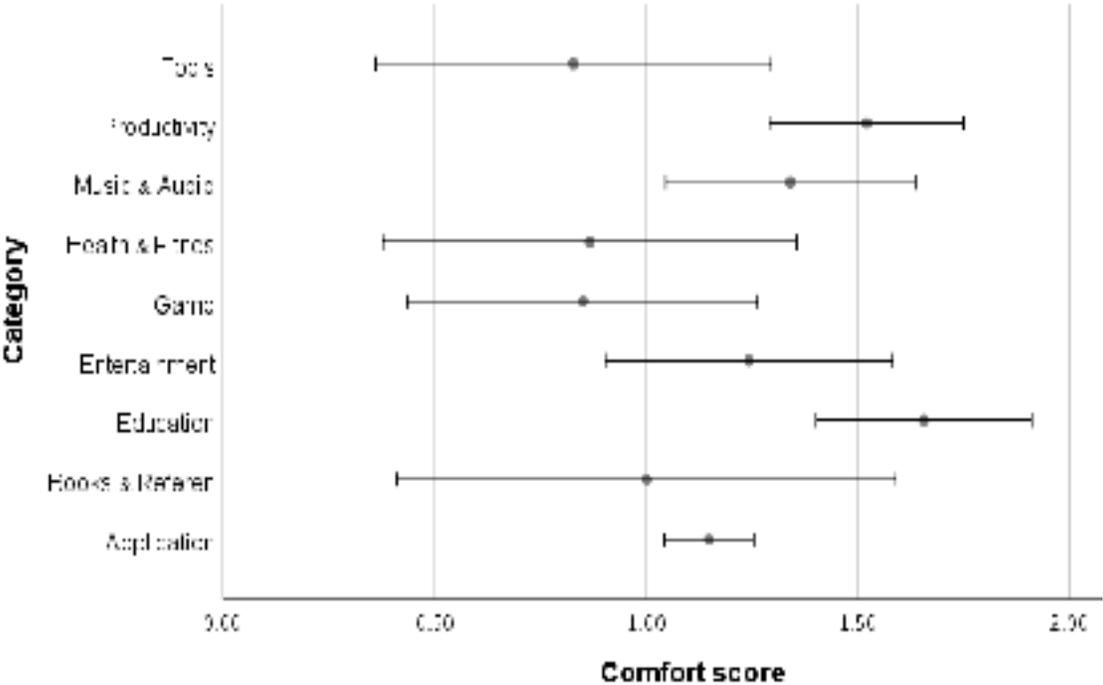
Purpose (Advertising, ...)

Comfort score (very comfortable, somewhat comfortable, somewhat uncomfortable, very uncomfortable)
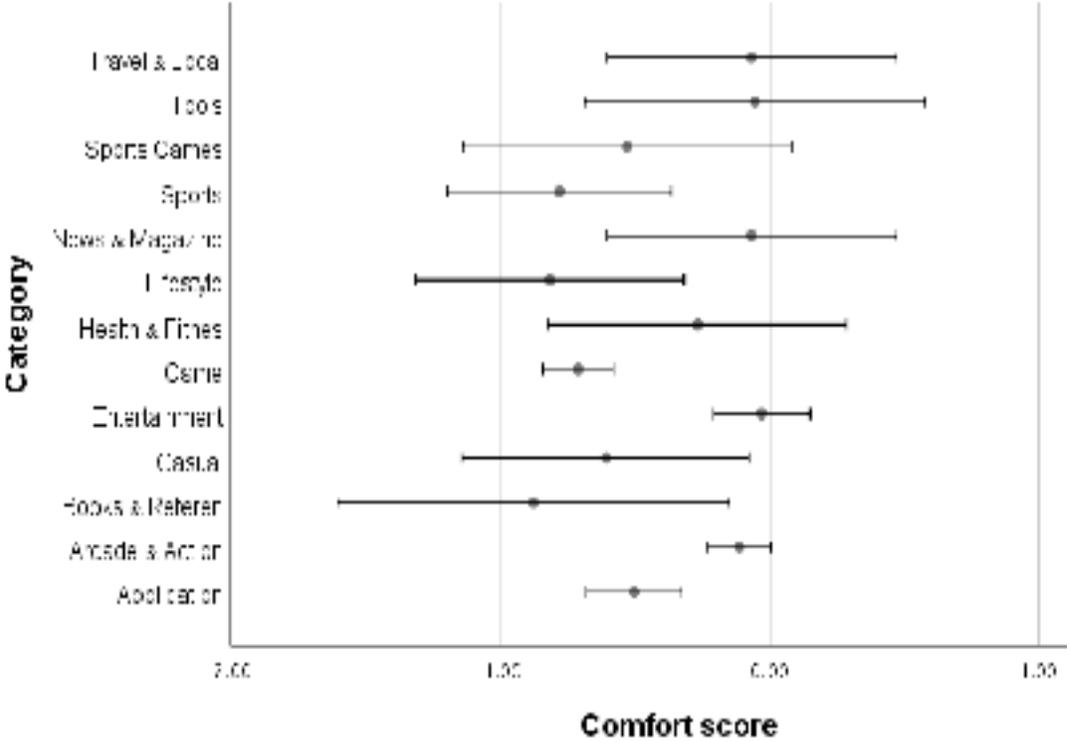
Actor Dependent Norms

On average, the comfort score is correlated with the category
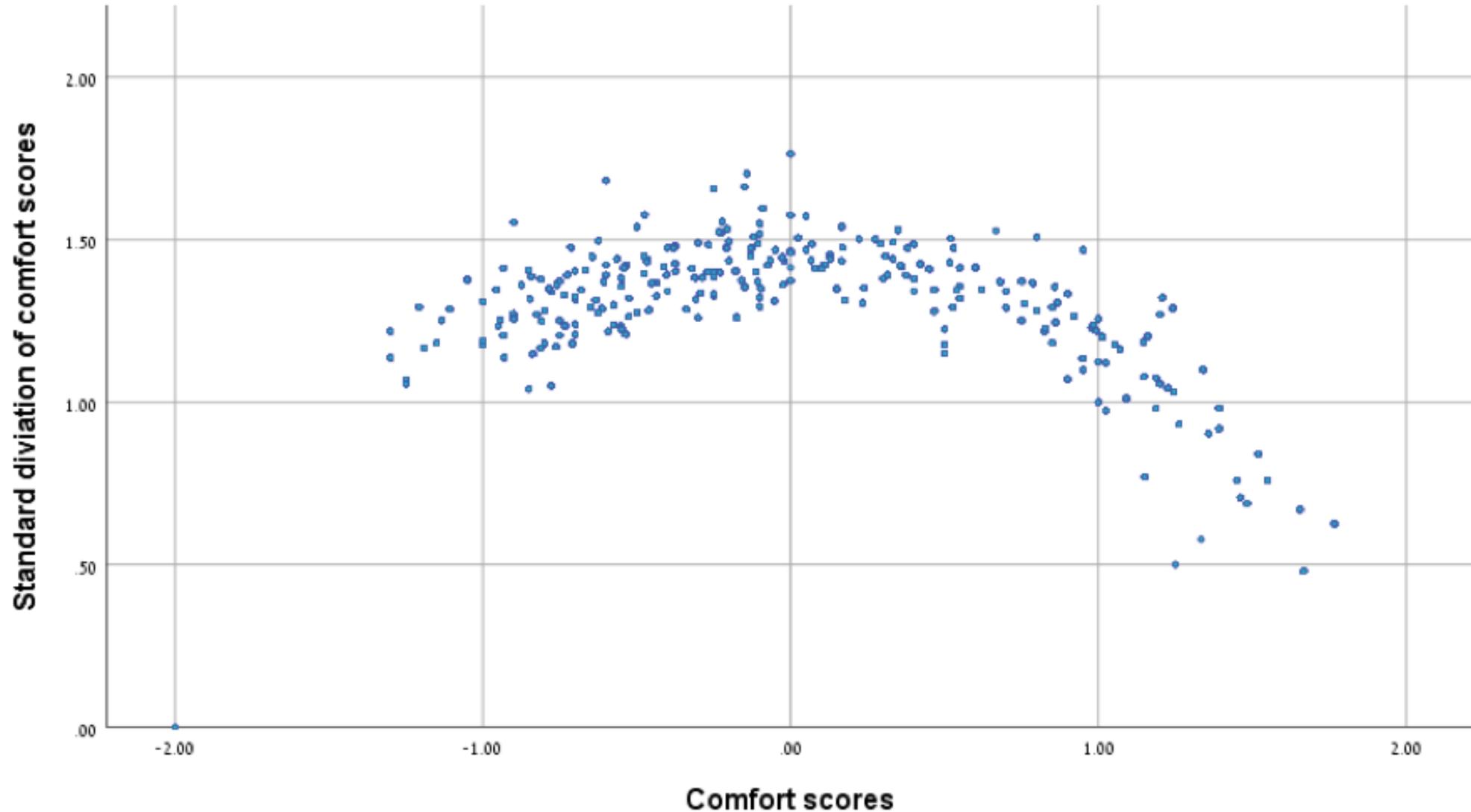
Actor Agnostic Norms
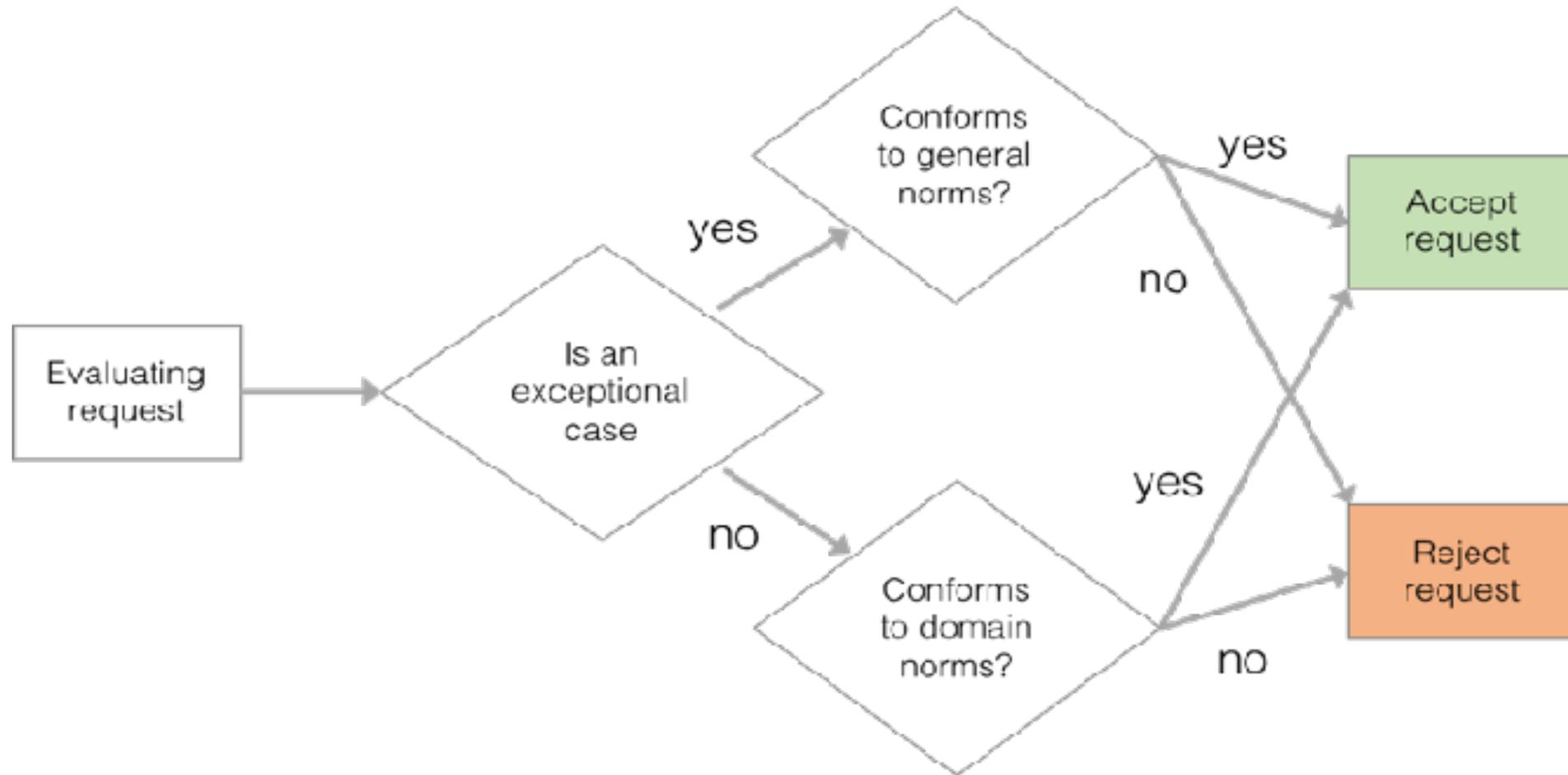

Permission: "Record Audio" Purpose: "Internal"

Permission: "Read Phone State" Purpose: "Mobile Analytics"

8

Contextual Effect of the Category

A Model of Normative Decision-Making

Discussion

- Contextual Integrity as a Descriptive Theory

- Extreme and normative cases

- Dynamic context framing: General and domain norms

- Implications for design:

  - Interactions that signal extreme cases

  - Social cues that encourage applying and questioning social norms

Thank you!

Funding: DARPA