Smart Home Ambient Intelligence: voice assistants

a new limit for our freedom

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Presentation Outline

Smart Home Ambient Intelligence: voice assistants
a new limit for our freedom

1. Introduction
   - Technological Mediation
   - Definitions
2. Case Study: Google Home - Google Assistant Actions
   - Applied concepts of Technological Mediation limiting our freedom
   - Ethical concerns arising from loss of freedom
3. Possible Remedies

Introduction

Technological Mediation

> *While fulfilling their function, technologies do much more: they **give shape to what we do** and how we experience the world. And in doing so they **contribute actively** to the ways we live our lives (Verbeek 2011)*

- Technologies are not **neutral intermediaries**
- Technologies play an **actively mediating role**
- Artifacts are **bearers of morality** (Latour 1992)
- Morality is a matter of **human-technology associations**

- Two perspectives of mediation:
  - Perception
  - **Action**: I will focus on **human freedom**

Definitions I

Ambient Intelligence

Ambient Intelligence *is an approach that combines two major technologies: Ubiquitous Computing and Intelligent User Interfaces (IUIs) (Brey 2005)*

Voice Assistant

A ***voice assistant*** *is a digital assistant that uses voice recognition, natural language processing and speech synthesis to provide aid to users through phones and voice recognition applications (WhatIs 2017)*

Definitions II

Freedom

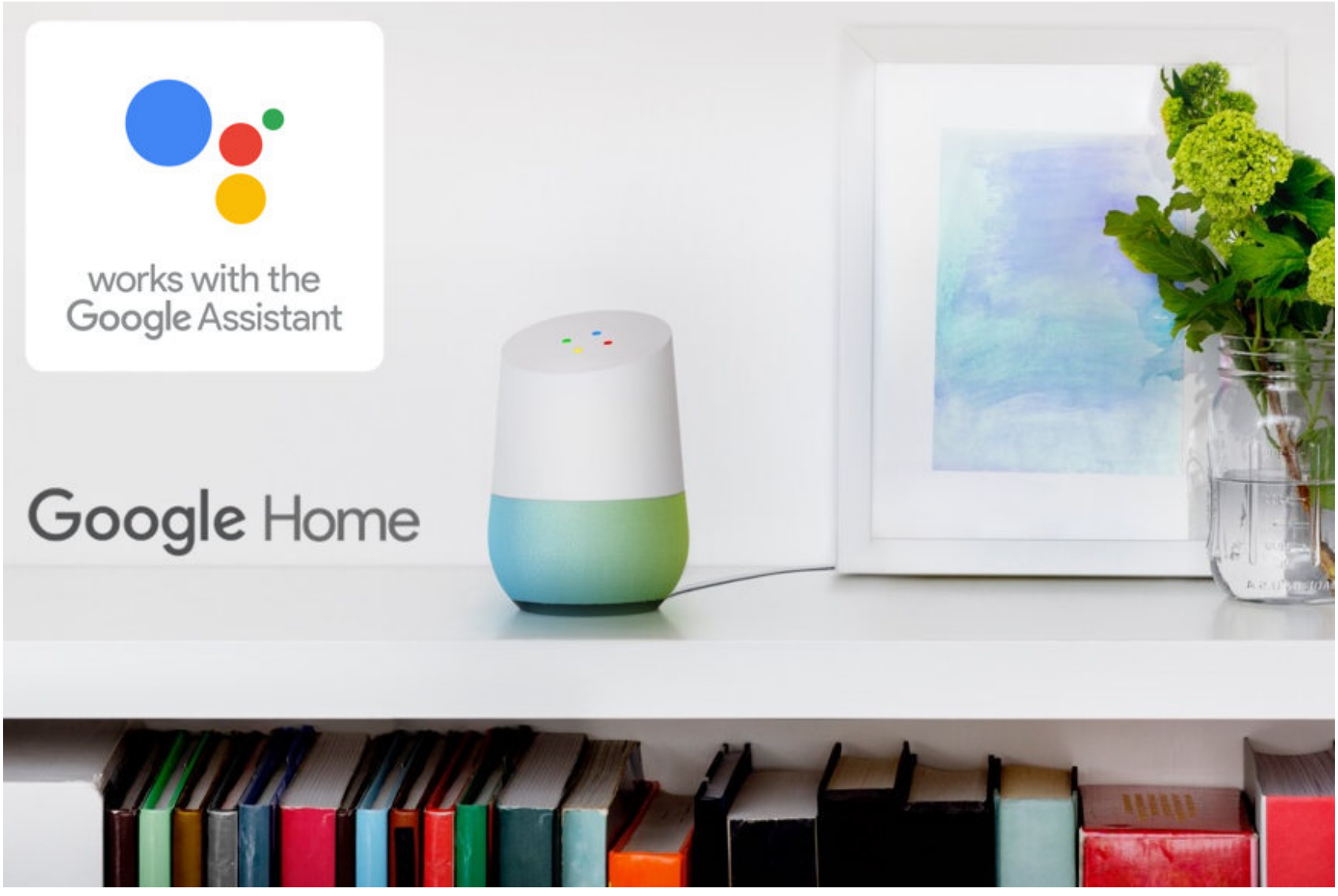
Two forms (Brey 2005, 2006):

- Negative Freedom:
  - act without obstruction or interference by others
  - absence of limits and external constraints

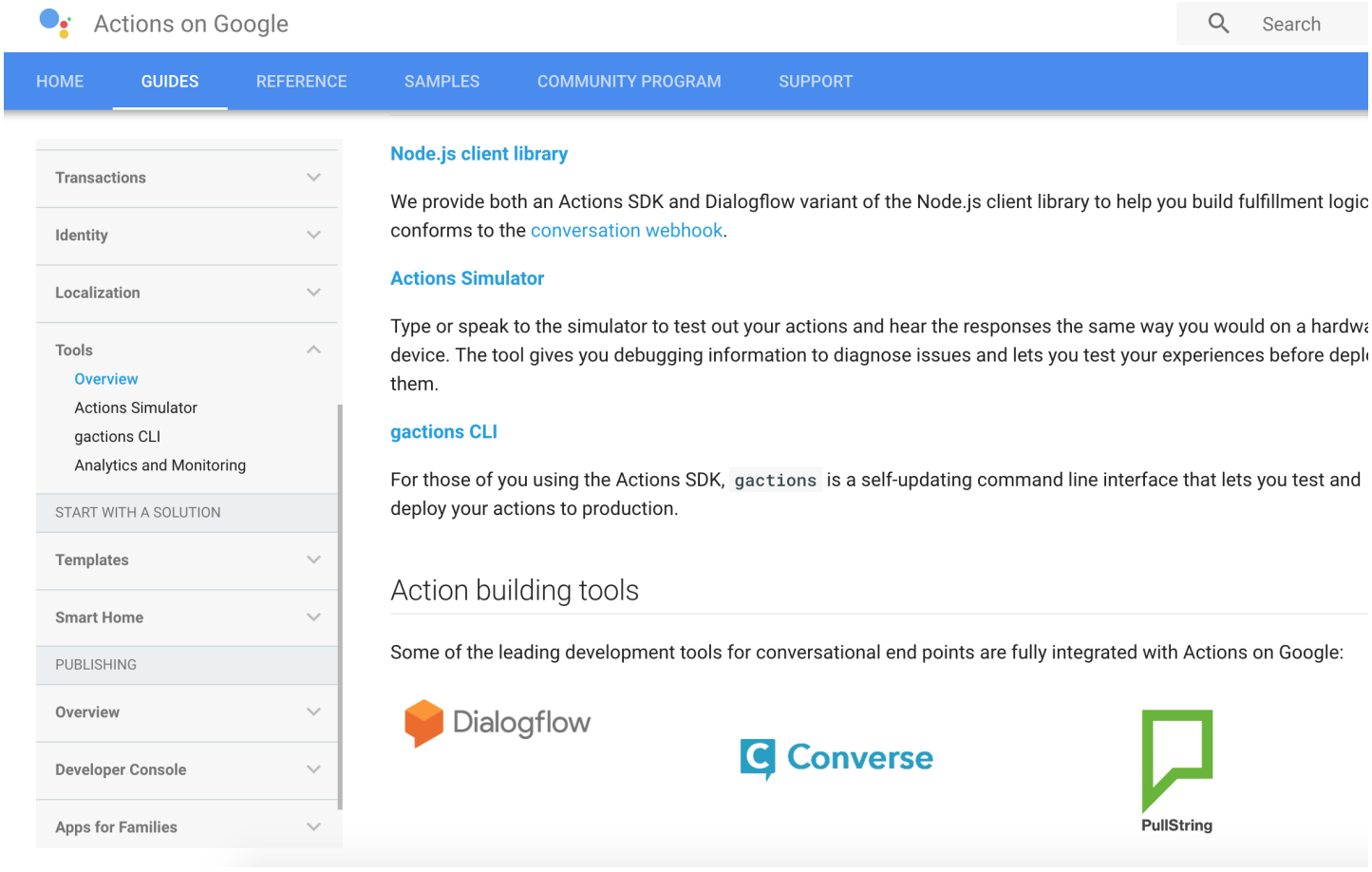
  example: artifact refusing to perform an action

- **Positive Freedom (Human Autonomy)**: I will focus on this
  - mastery over your own life
  - **think freely**, **make your own decisions** to act

Case Study: Google Home - Google Assistant Actions



Google Assistant Actions



Starting from the **Actions on Google documentation** I will show:

1. **Applied concepts** of Technological Mediation limiting our freedom
2. **Ethical concerns** arising from loss of freedom

Applied concepts of Technological Mediation limiting our freedom

Script: make your own decisions

Script

> *A **script** is a prescription of how to act when using the artifact (Verbeek 2011)*

Interactions can be built in two ways (Google 2017):

- **With templates**
  - build apps **without writing a single line of code** ...
  - build apps quickly **without worrying about designing conversations** ...
  - Google decides which interactions are good and what aren't
- **Without templates**
  - **Dialogflow**
    - machine learning
    - natural language understanding
    - extract parameters (data) from the user input
  - developers can decide the whole conversational interaction

Script: make your own decisions

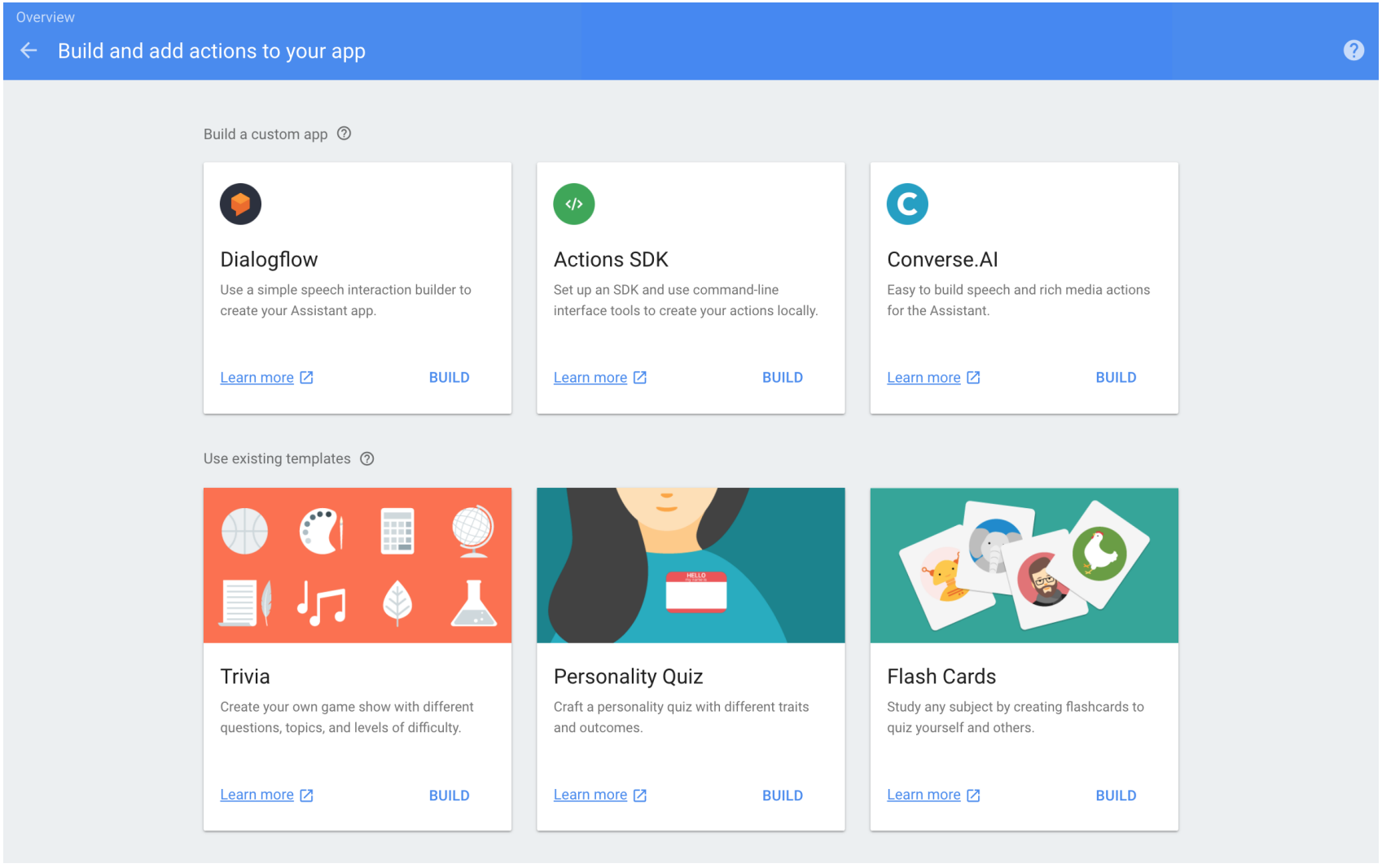


Figure: Actions On Google Console

Invitation/Inhibition: make your own decisions

Invitation/Inhibition

*The scripts of artifacts **suggest specific actions** and **discourage others** (Verbeek 2011)*

- Developers while creating the application logic (*fulfillment*) **enable some actions** and **disable some others**
- The conversational interaction doesn't go on if the user hasn't answered with **all the required parameters**

Invitation/Inhibition: make your own decisions

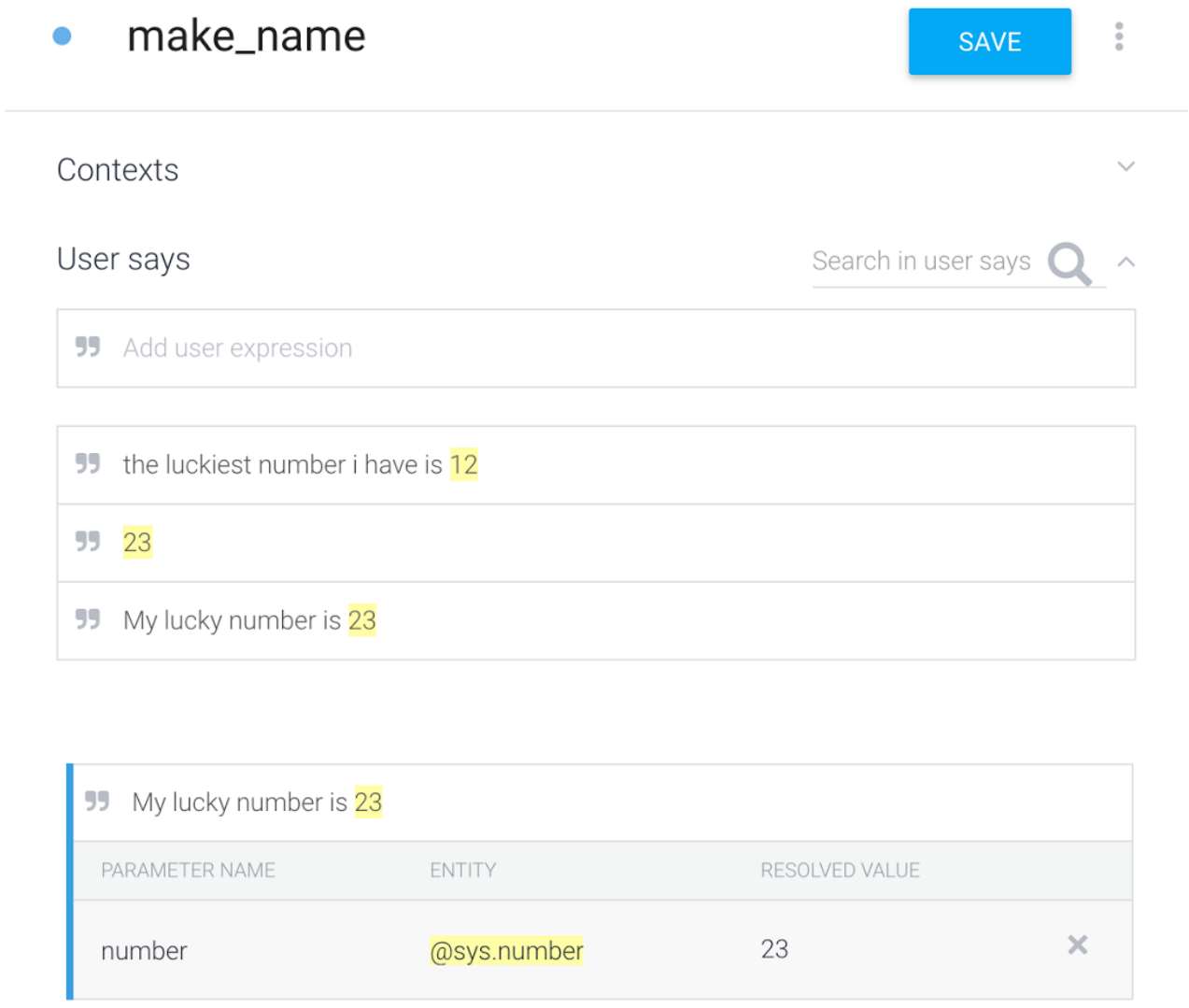


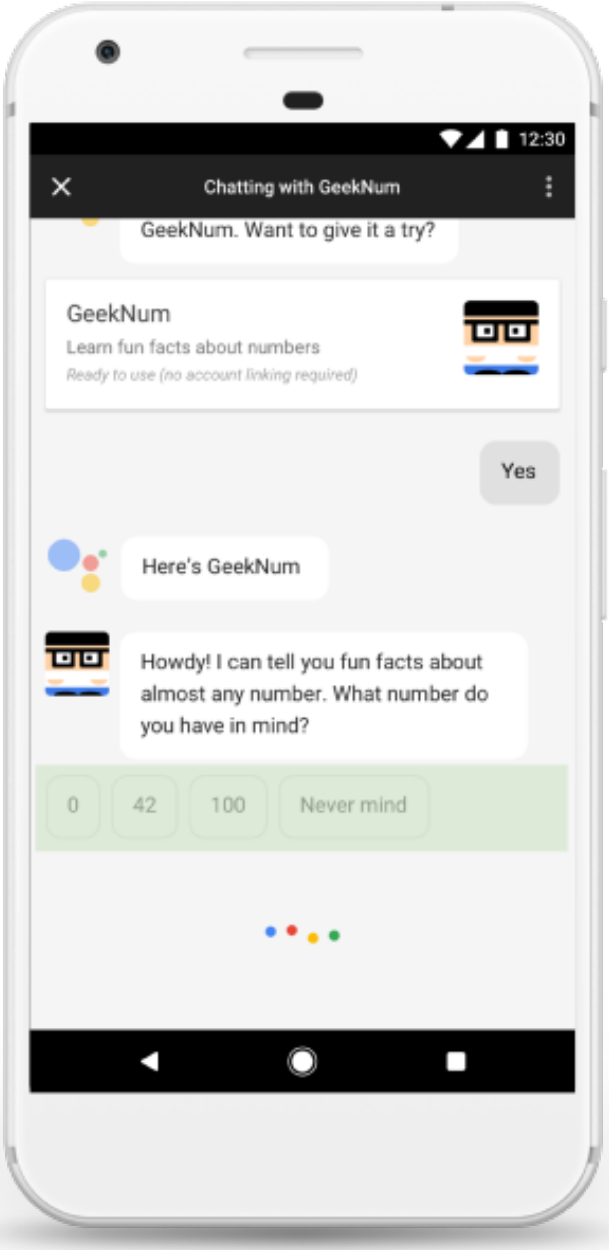
Figure: DialogFlow interactions

Behaviour Steering: think freely I

Suggestion Chips

> *Use suggestion chips to **hint at responses** to continue or **pivot the conversation** (Google 2017)*

This happens in vocal interactions, but can be more easily visualized on mobile phones



Behaviour Steering: think freely II

> *Smart objects could become* ***intermediaries between businesses and consumers****, using their intelligence to* ***persuade customers to buy products*** *. . . Such influence could already be* ***exerted at the design stage*** *. . .*
> *(Brey 2005)*

Advertisements

- Google Assistant **advertised "*Beauty and the Beast*"** film, but Google claimed it was not an ad (AndroidPolice 2017)
- In future **Google Assistant will include ads**
  - make money by **promoting e-commerce from partners** (Recode 2017)
  - forecasted ad-spend of **19 billions globally by 2022** (Juniper 2017)
  - what about developers shaping behaviour based on analytics?

Behaviour Steering: think freely III

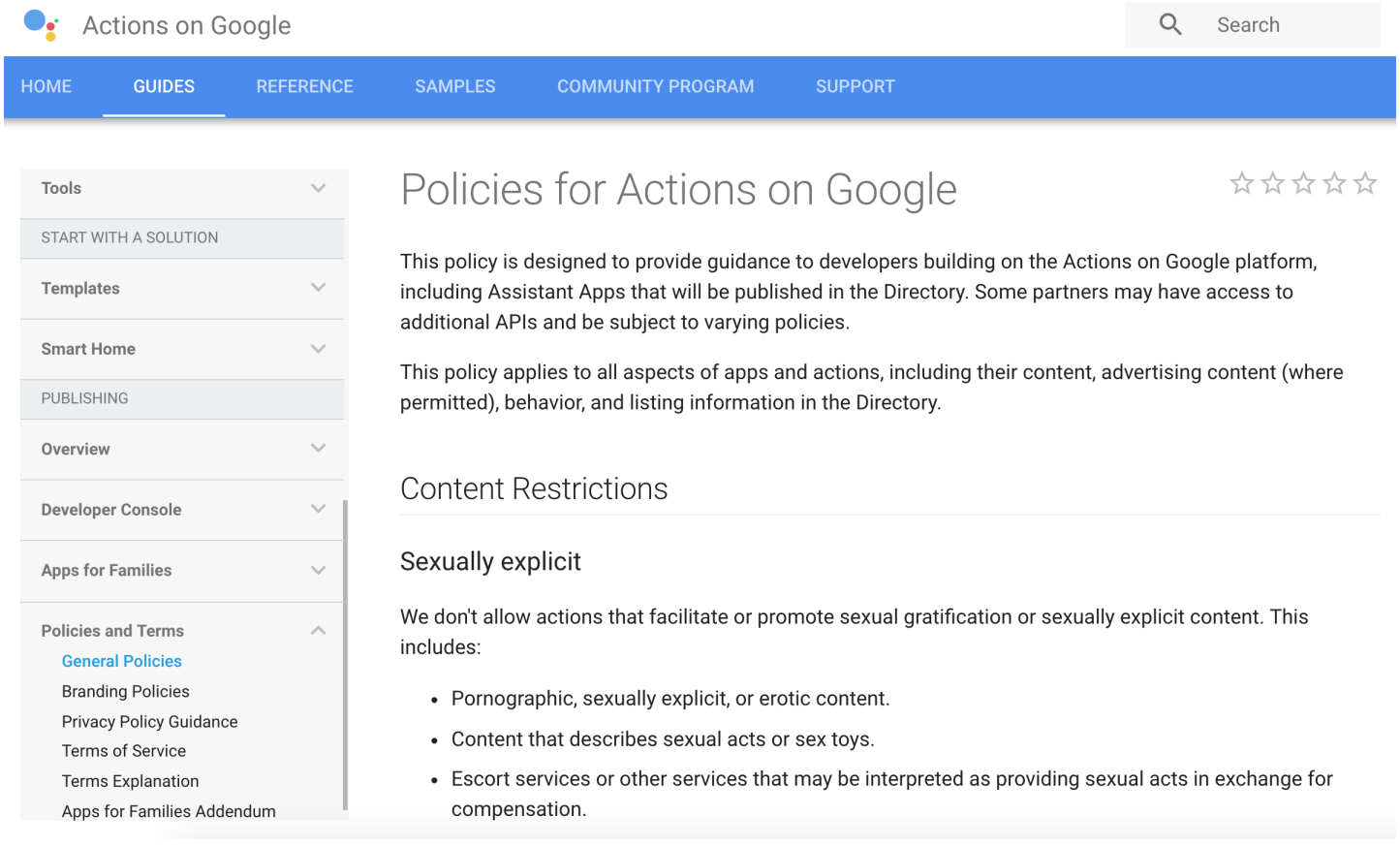
> ***Agent-based dialogue systems*** *can be included in IUI's to monitor users and* ***make assumptions about their intentions and the task they are trying to perform*** *(Brey 2005)*

Implicit Invocation

> *The Assistant opts to invoke an app because it can fulfill the user's intent,* ***without users calling it by name*** *(Google 2017)*

example: "Hey Google, book an appointment to fix my bike"

What about Technological Mediation?



Google Actions Policies and Terms are designed towards: privacy, content, branding ...

- following the **Guidance For Conversation Design** is enough?

Ethical concerns arising from loss of freedom

Technocracy

- Experts will shape our mediations
- **Opposite problem**: people without enough background may design mediations and publish them
  - today are very limited mediations
  - what about the future?

Moral Laziness

commodification of morality

Moral responsibility of designers

What if in the future developers will shape morality???
Responsibility vacuum

What about behaviour change?

what if we want to change our behaviour towards what we think is good to us and not towards what is good for the designers?

Possible Remedies

Possible Remedies

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