

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

# Case Study: Google Home - Google Assistant Actions



# Google Assistant Actions

The screenshot shows the 'Actions on Google' documentation page. The header includes the Google Assistant logo and the text 'Actions on Google', a search bar, and a navigation menu with links: HOME, GUIDES, REFERENCE, SAMPLES, COMMUNITY PROGRAM, and SUPPORT. The left sidebar contains a list of categories: Transactions, Identity, Localization, Tools (with sub-links: Overview, Actions Simulator, gactions CLI, Analytics and Monitoring), START WITH A SOLUTION, Templates, Smart Home, PUBLISHING, Overview, Developer Console, and Apps for Families. The main content area features three sections: 'Node.js client library' (describing SDK and Dialogflow variants), 'Actions Simulator' (describing a testing tool), and 'gactions CLI' (describing a command-line interface). Below these is a section titled 'Action building tools' which states that leading development tools are integrated with Actions on Google. This section includes logos for Dialogflow, Converse, and PullString.

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 build in two main ways (Google 2017):

- ▶ **With templates**

- ▶ ... build apps **without writing a single line of code!**
- ▶ ... build apps quickly **without worrying about designing conversations** ...

- ▶ **Without templates**

- ▶ DialogFlow and integrated NLP engine
- ▶ developers can decide the whole conversational interaction

# Script: make your own decisions

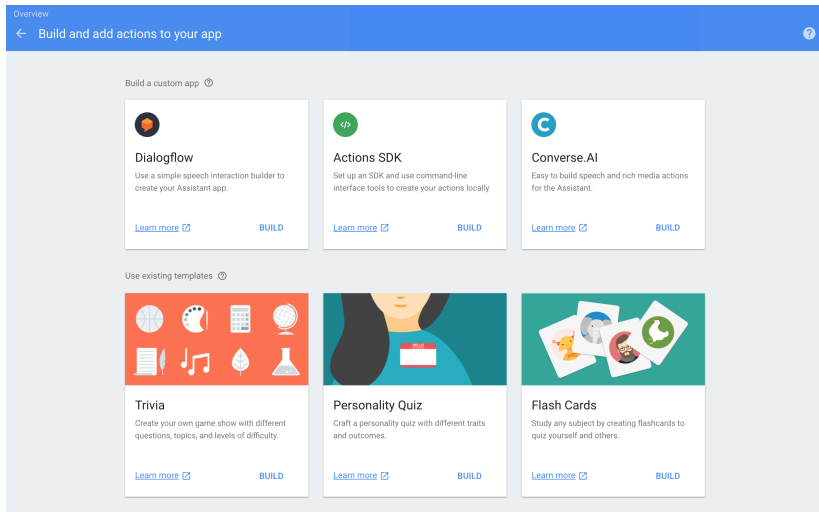


Figure: Actions On Google Console

# Invitation/Inhibition: make your own decisions

## Invitation/Inhibition

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

- ▶ Fullfillment = application logic
- ▶ Developers create the logic of the interaction by enabling some actions and inhibiting some others.
- ▶ The conversational interaction doesn't go on if the use hasn't included all the expected parameters in the answer

# Invitation/Inhibition: make your own decisions

• make\_name

SAVE



Contexts



User says

Search in user says



” Add user expression

” the luckiest number i have is 12

” 23

” My lucky number is 23

Figure: DialogFlow building interactions

## Behaviour Steering: think freely

- 1) suggestion chips
- 2) In future Google Assistant will propose in the conversation also ADS!!! And developers can see analytics to shape further the behaviour.
- 3) Idea: natural language “may hide” the behaviour steer but it is designed there! "Explicit vs implicit invocation".

# Where is Technological Mediation?

1) Google Actions Policies and terms: designed towards privacy, content, branding, ... : what about technological mediation?

Ethical concerns arising from loss of freedom



# Technocracy

+ we may have the opposite problem: non technical people designing actions without having enough background!!!

# 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

# Bibliography I



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