How Risky Are Real Users' IFTTT Applets?

Camille Cobb (**@camPossible**), Milijana Surbatovich, Anna Kawakami, Mahmood Sharif, Lujo Bauer, Anupam Das, Limin Jia

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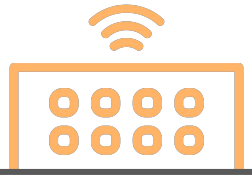
WELLESLEY COLLEGE

Smart-home devices can lead to risks



ars TECHNICA

BIZ & IT TECH SCIENCE POLICY CARS GAMING & CULTURE

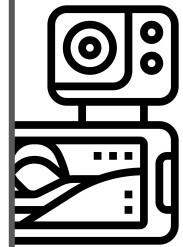
"GOD'S WRATH" —

New IoT botnet offers DDoSes of once-unimaginable sizes for $20

T | Wirecutter

Photo: Sara

Amazon's Alexa Never Stops Listening to You. Should You Worry?



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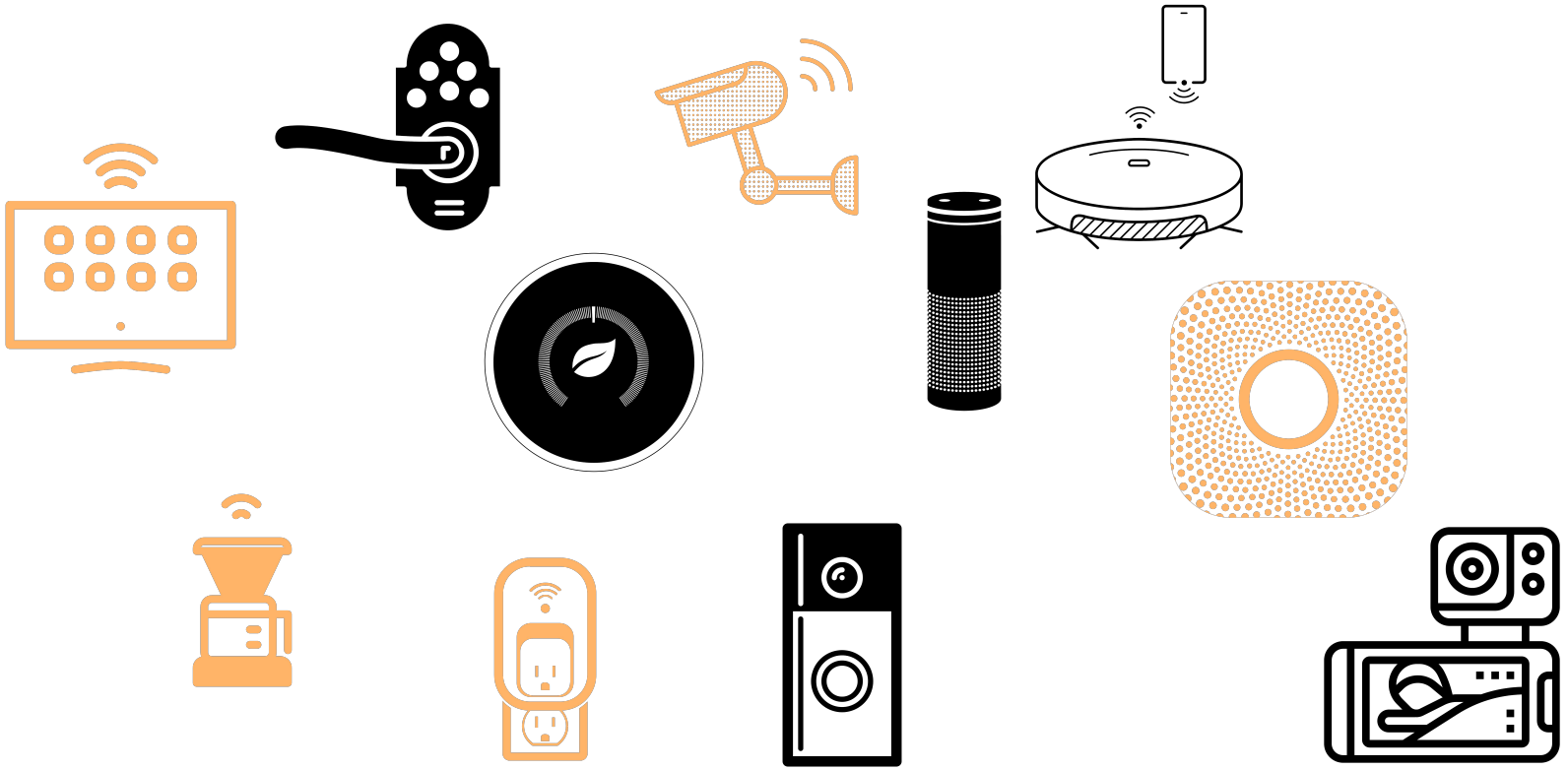


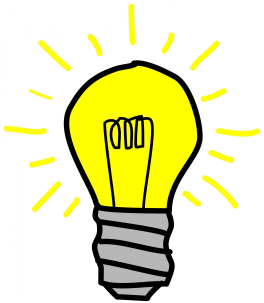
“applet”

this

that

if then

“trigger”

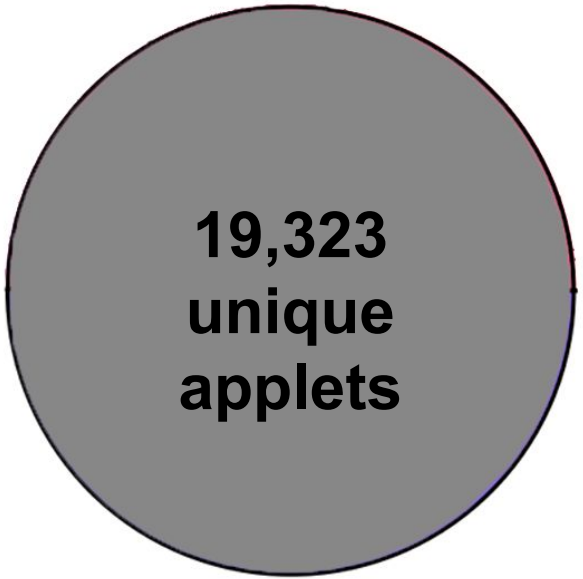


“action”

SECRECY VIOLATION

if SmartThings sensor is closed **then** post a message to Slack

INTEGRITY VIOLATION



[Surbatovich et al. 2017]

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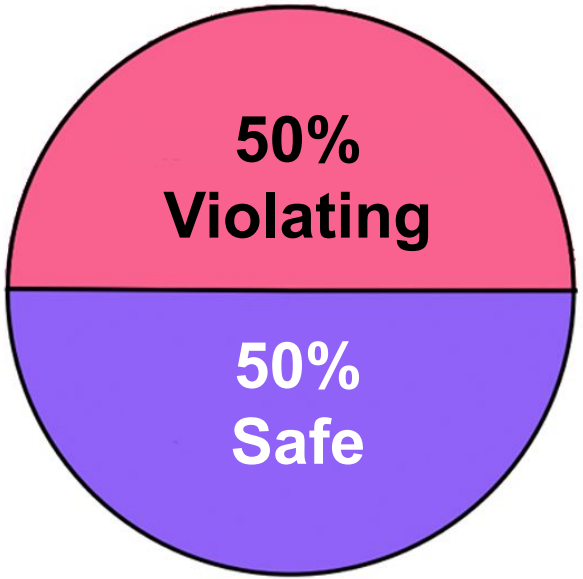
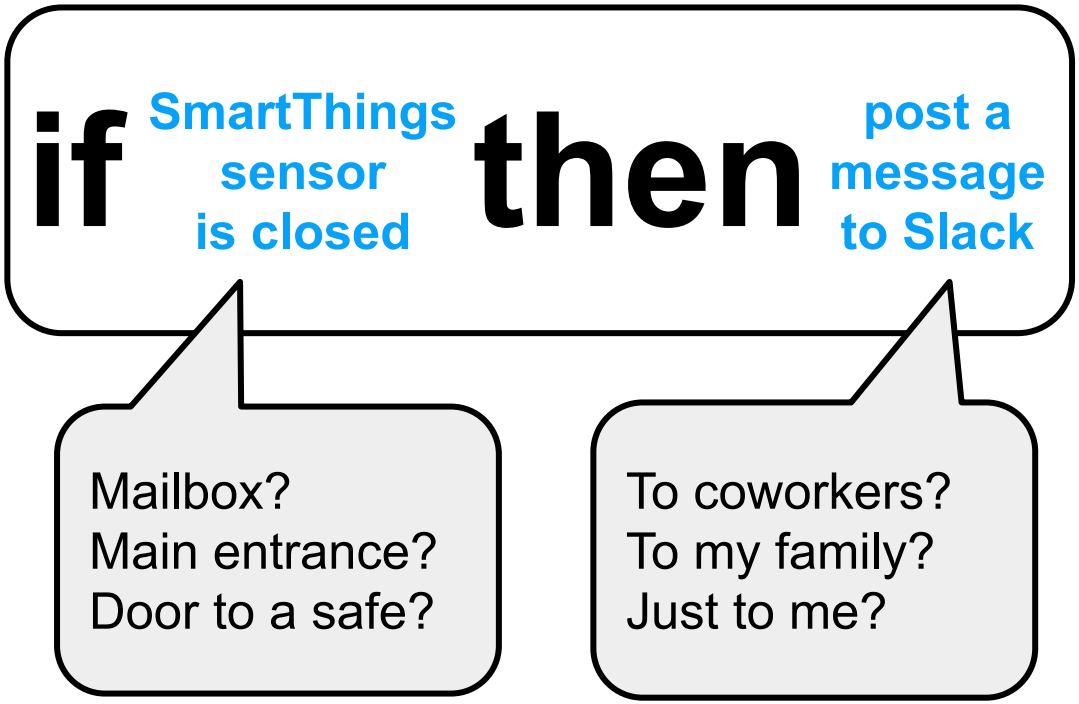


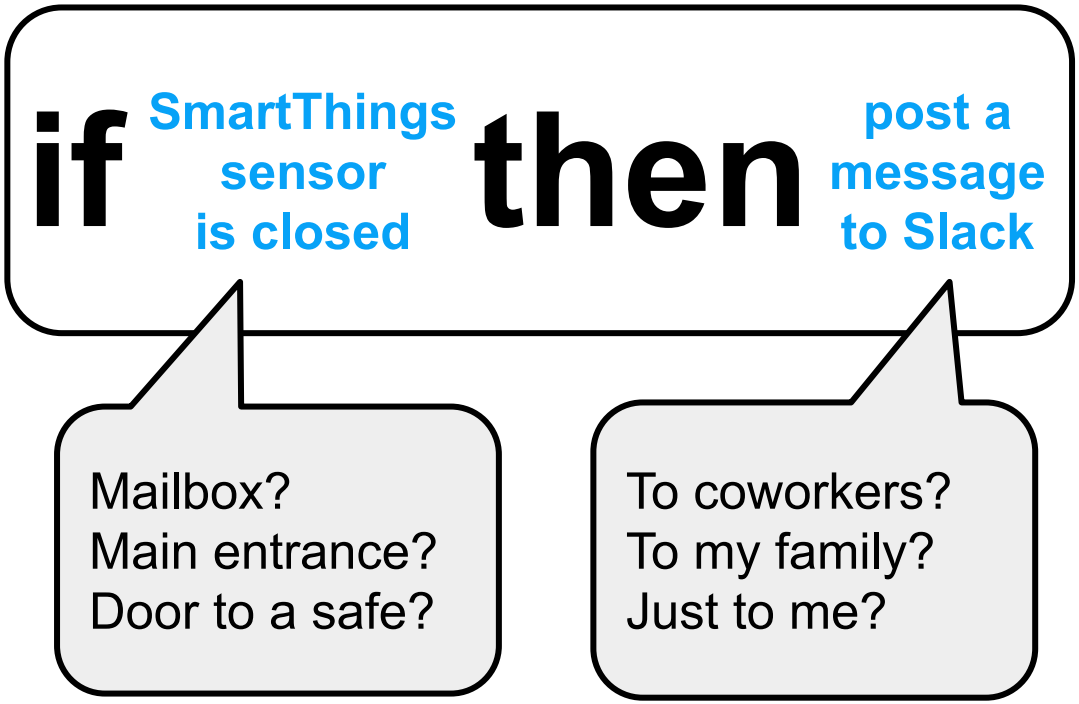
[Surbatovich et al. 2017]

Moving from theory to practice



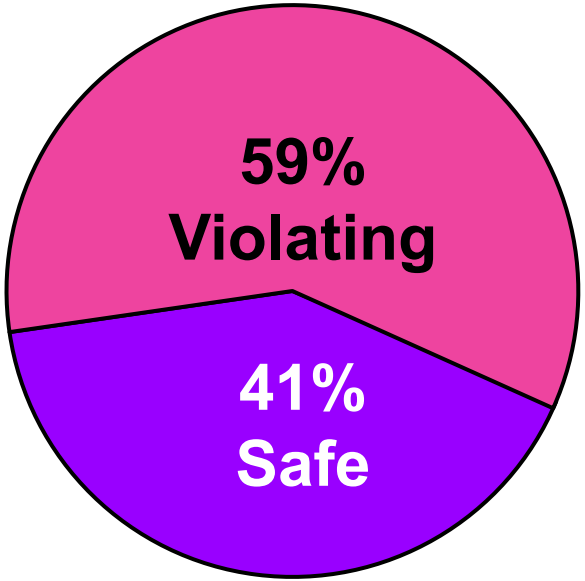
- What fraction of users' IFTTT applets are violating, in practice?
- How much and what types of harm are IFTTT users actually exposed to?

We collected 743 rules from 28 IFTTT users



*"If **front Door** Sensor closed then post a message to a Slack service"* [P28]

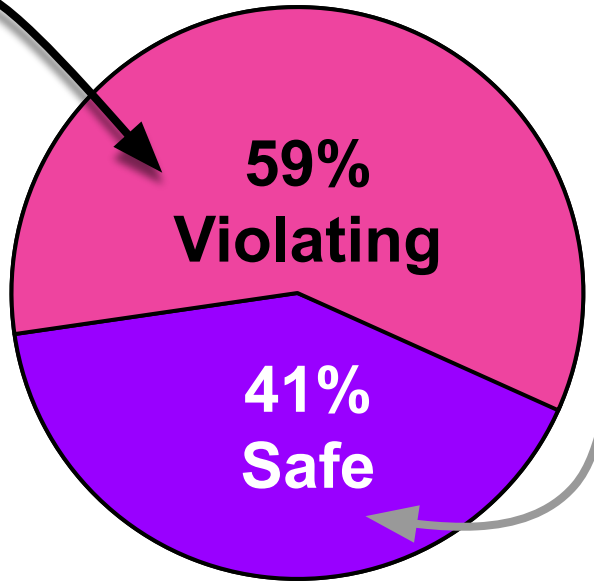
Evaluating participants' rules:
automated analysis finds similar results



Evaluating participants' rules:
considering context enables more accurate analysis

Are all of these harmful?

No!



Are any of these potentially harmful?

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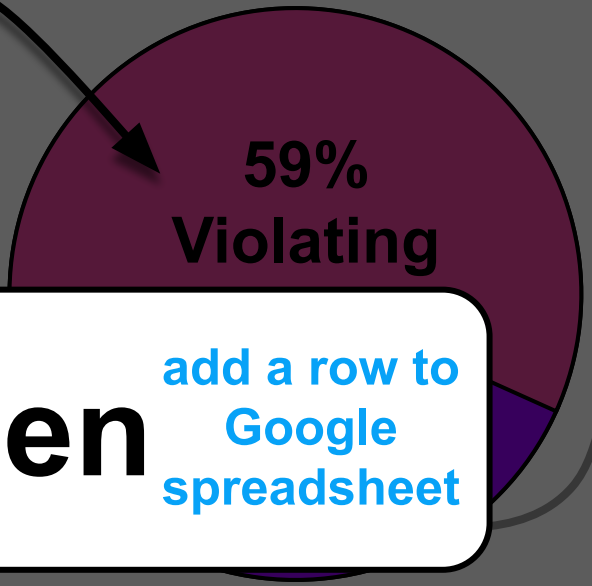


if SmartThings sensor is closed **then** add a row to Google spreadsheet

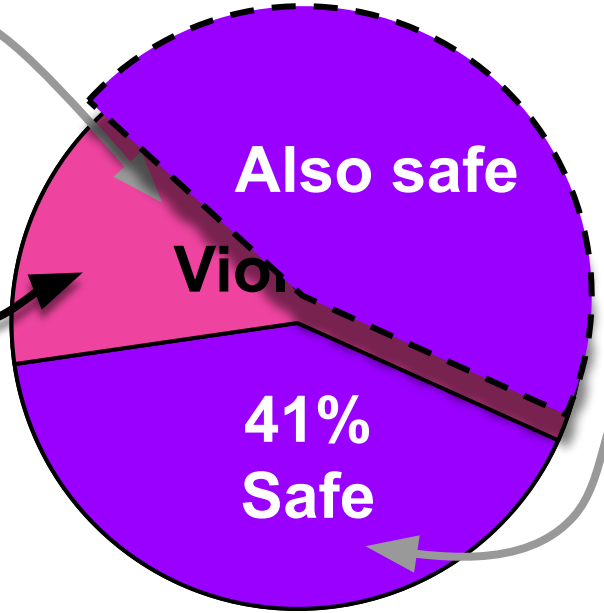
Are any of these potentially harmful?

Evaluating participants' rules: considering context enables more accurate analysis

Are all of these harmful?

No!

only ~14% harmful (not 59%)



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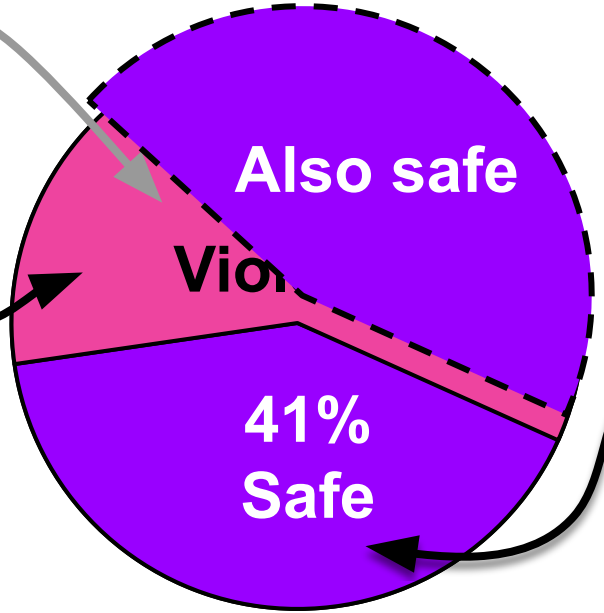

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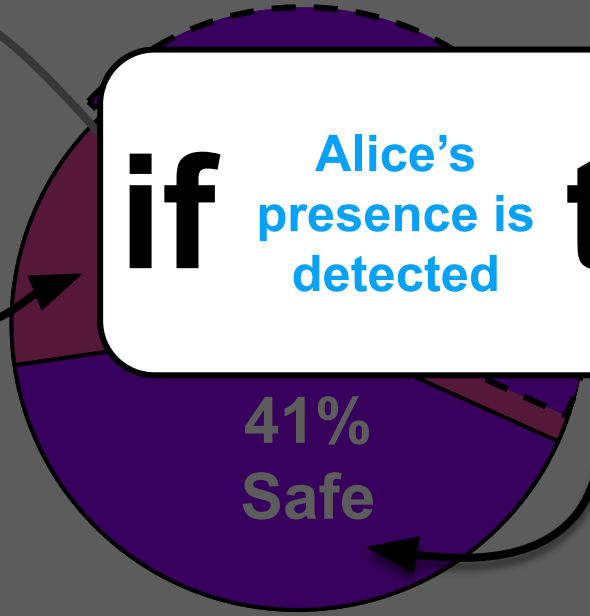

if Alice's presence is detected **then** create journal entry

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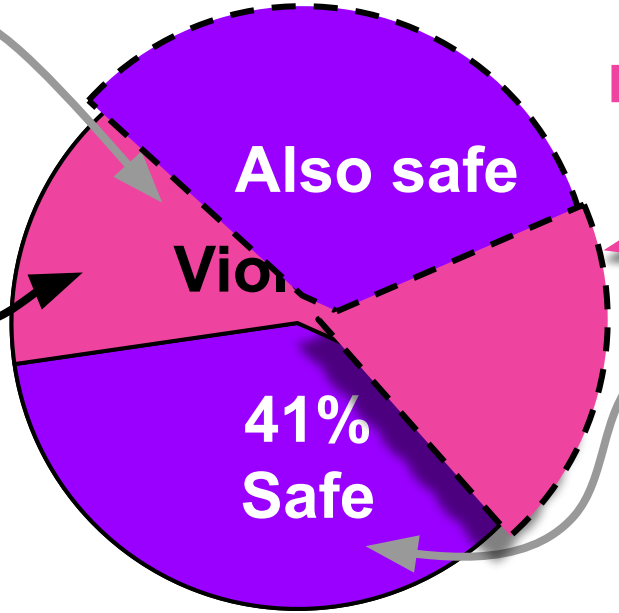

20% surveillance risks for *incidental users*

Are any of these potentially harmful?

Yes!

How Risky Are Real Users' IFTTT Applets?

- Real user data → New insights about risks & harms
  - Many "violating" rules are not harmful
  - "Non-violating" rules could be harmful
  - More in the paper!

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