

Vulnerability & Blame: Making Sense of Unauthorized Access to Smartphones



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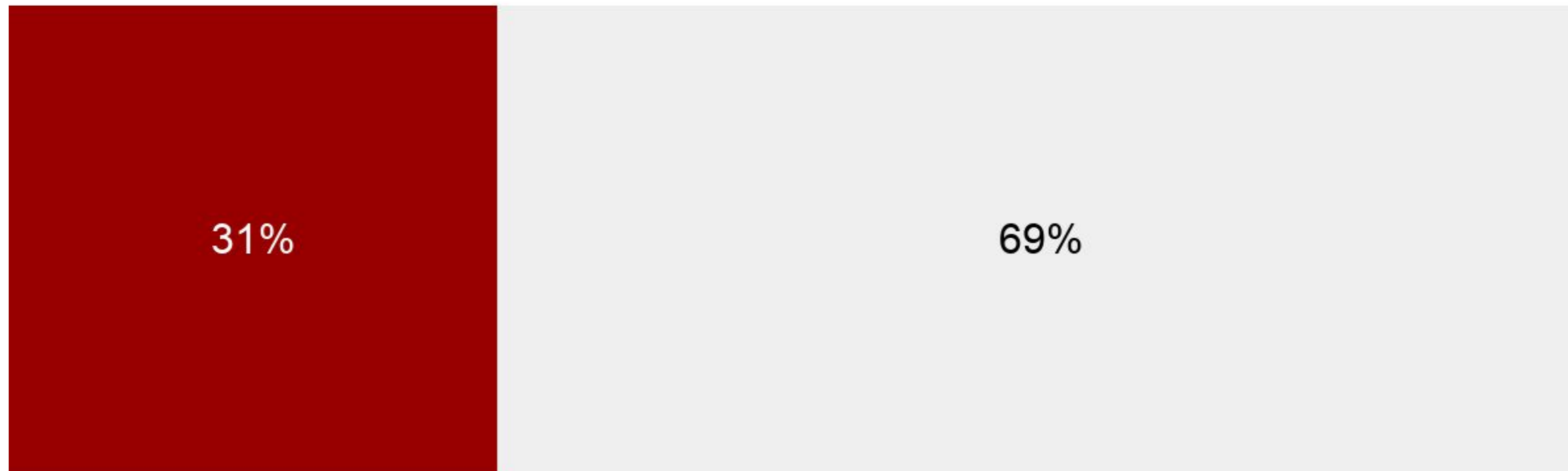


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"In the past 12 months, I've looked through someone else's cell phone without their permission."

Estimates from indirect survey (list experiment), N = 1,381 MTurk sample

■ Yes ■ No



Diogo Marques, Ildar Muslukhov, Tiago Guerreiro, Konstantin Beznosov & Luís Carriço. 2016. [Snooping on Mobile Phones: Prevalence and Trends](#). Proceedings of the Twelfth Symposium on Usable Privacy and Security (SOUPS '16).

What are incidents of unauthorized access like?

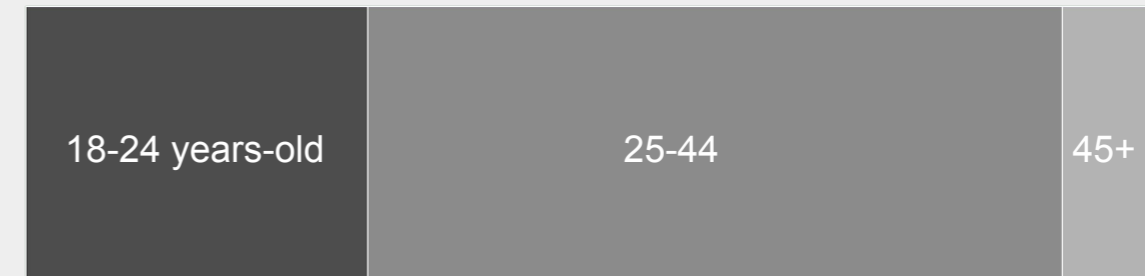
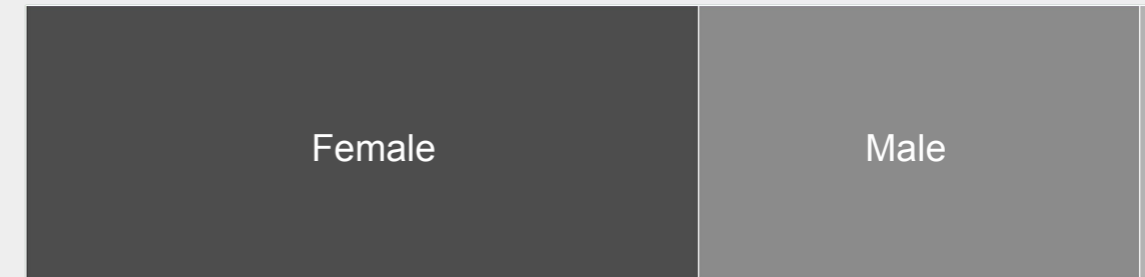
**What are incidents of unauthorized
physical **access** to smartphones
involving people known to each other
like?**

Approach

Collect accounts of incidents:

- experienced either as smartphone owner or person accessing smartphone
- written as stories

Data: 102 open-text stories collected from [Prolific](#)



Participant demographics



Ash and Val had been dating for about two years, and things were rocky.

Ash seemed distant and uninterested in Val most of the time, which became a large problem in their relationship. Ash progressively became more distant and absent, and Val could hardly stand it.

One night while Ash was fast asleep in their bed, Val decided to look through Ash's phone on the bedside table. Signs of infidelity, possibly from the beginning of their relationship were on the phone. There were text messages with sexually explicit photos and pet names.

Val waited until the morning to mention what was found to Ash. When Ash woke up, the phone was displaying one of the photos and the jig was up. It was obvious that Val had found out what had been going on.

Val had already packed up everything and was ready to leave. Ash never saw Val again.

Analysis

1. Unpacking incidents

- **What happens** in incidents of unauthorized access to smartphones?

2. Making sense of incidents

- **How did participants represent incidents,** and what does that tell us?

Unpacking incidents

- Coding of stories from explicit evidence in the text
- Two raters coded subset of 10 stories, with 95% agreement

Outcome: 61 codes, in 8 categories

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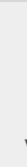
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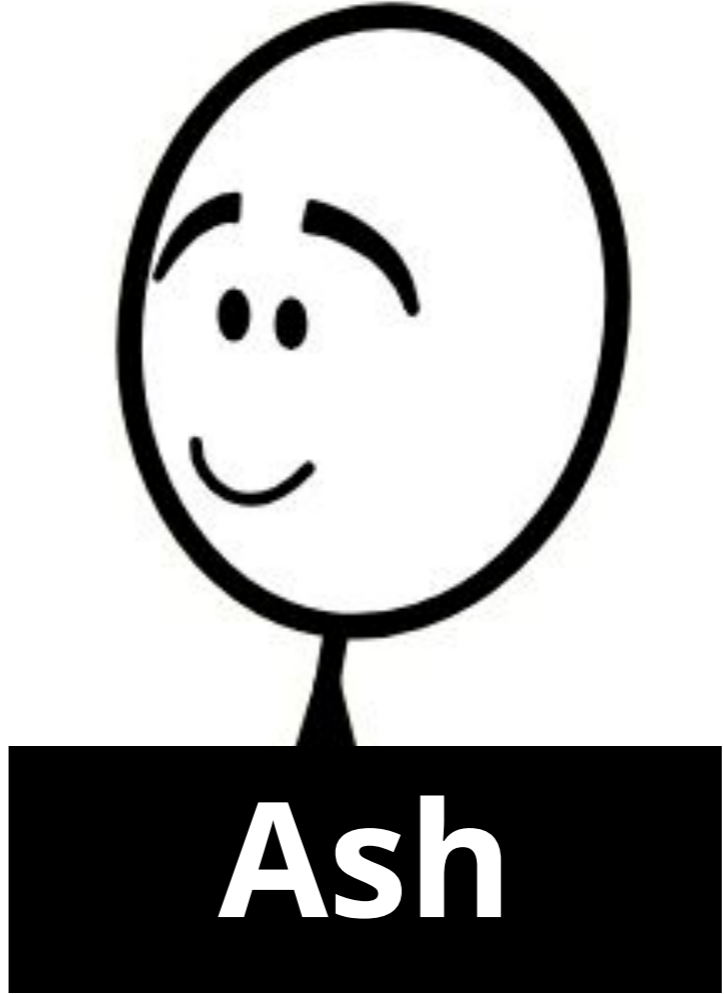
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(P54)



Type of relationship
Motivation
Opportunity
Use of locks
Val's actions
Awareness
Aftermath
Relationship termination



Convention: Val accessed Ash's smartphone without permission

What was the relationship between Ash and Val?



Ash and Val were **intimate partners**, former intimate partners, or one of them aspired to an intimate relationship with the other

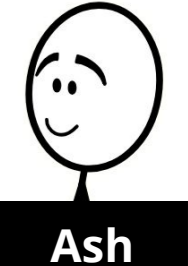
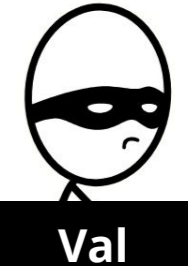
Ash and Val were **friends**, including people from work or school who are considered friends

Ash and Val were **family** members other than intimate partners

Ash and Val were **acquaintances.**

Ash and Val were **co-workers** who were not considered to be friends

None of the aforementioned, or not enough information to decide.



What was the primary motivation for unauthorized access?



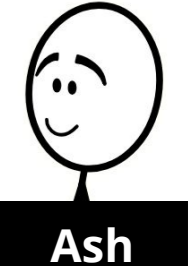
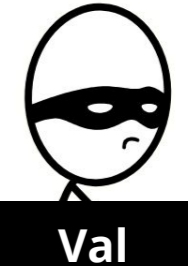
Control - Val wanted to learn about, or influence, Ash's relationships with third parties

Val wanted to play a **prank** on Ash

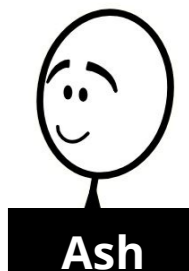
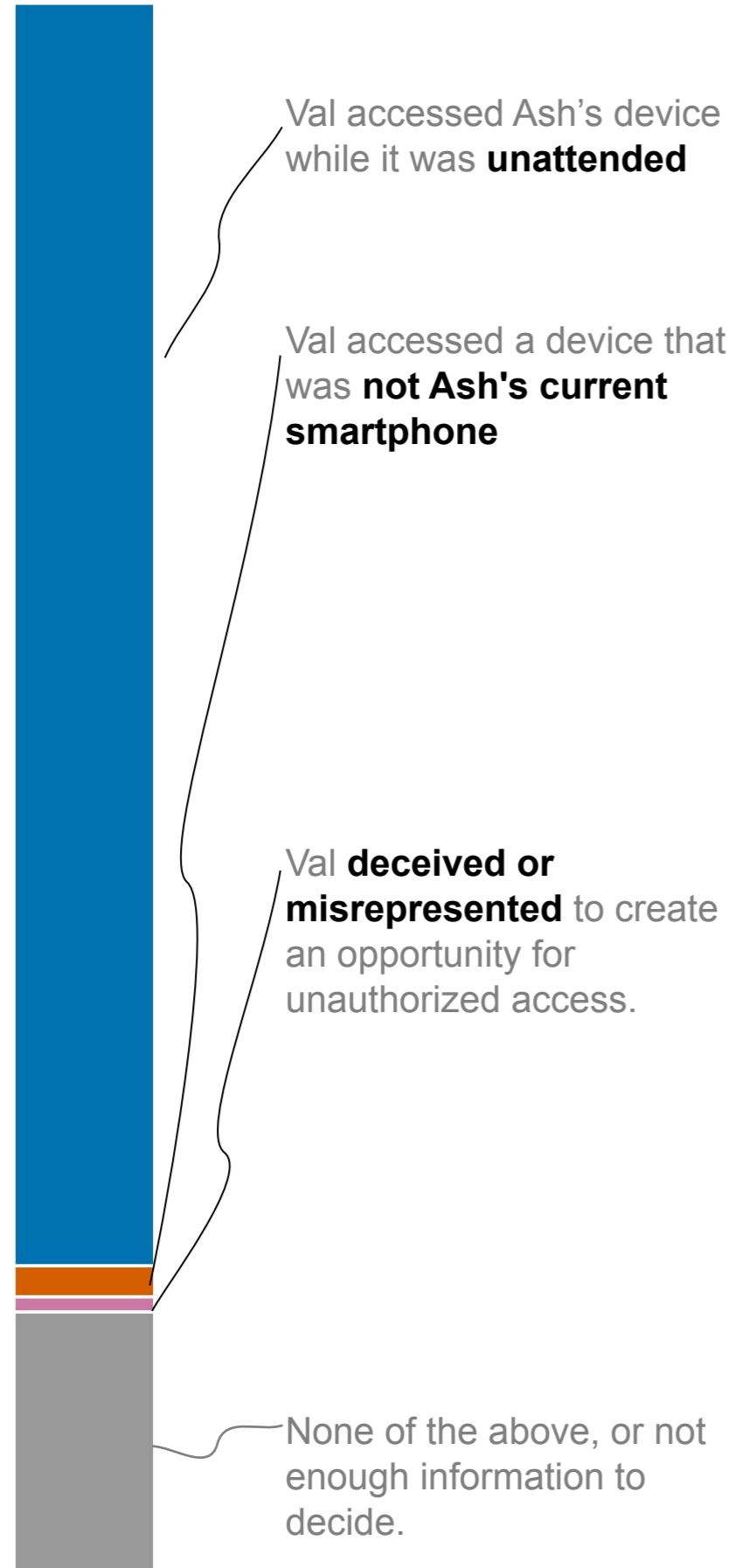
Val wanted to use some of the device's functionality out of **convenience**

Exploit - Val wanted to steal something from Ash

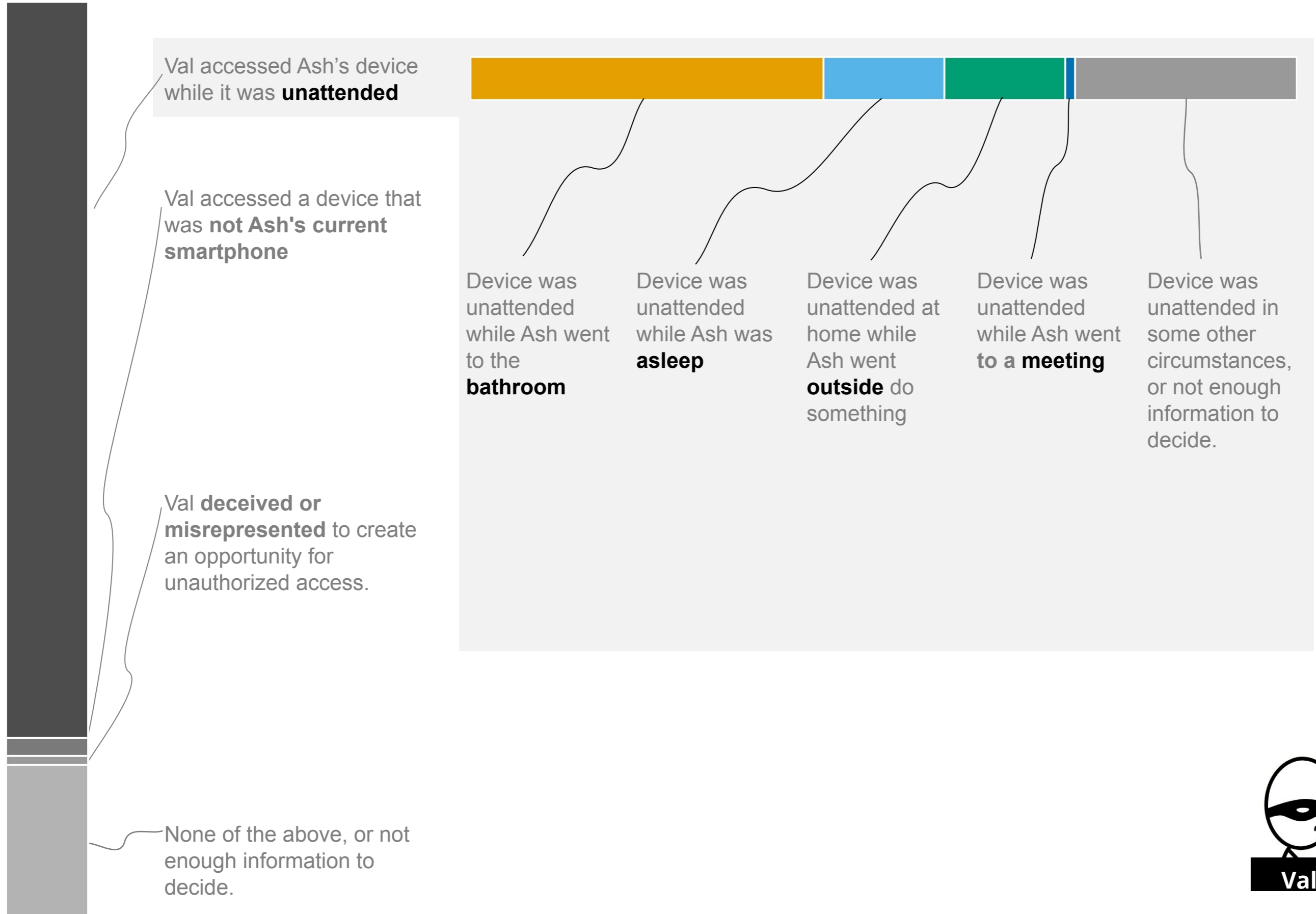
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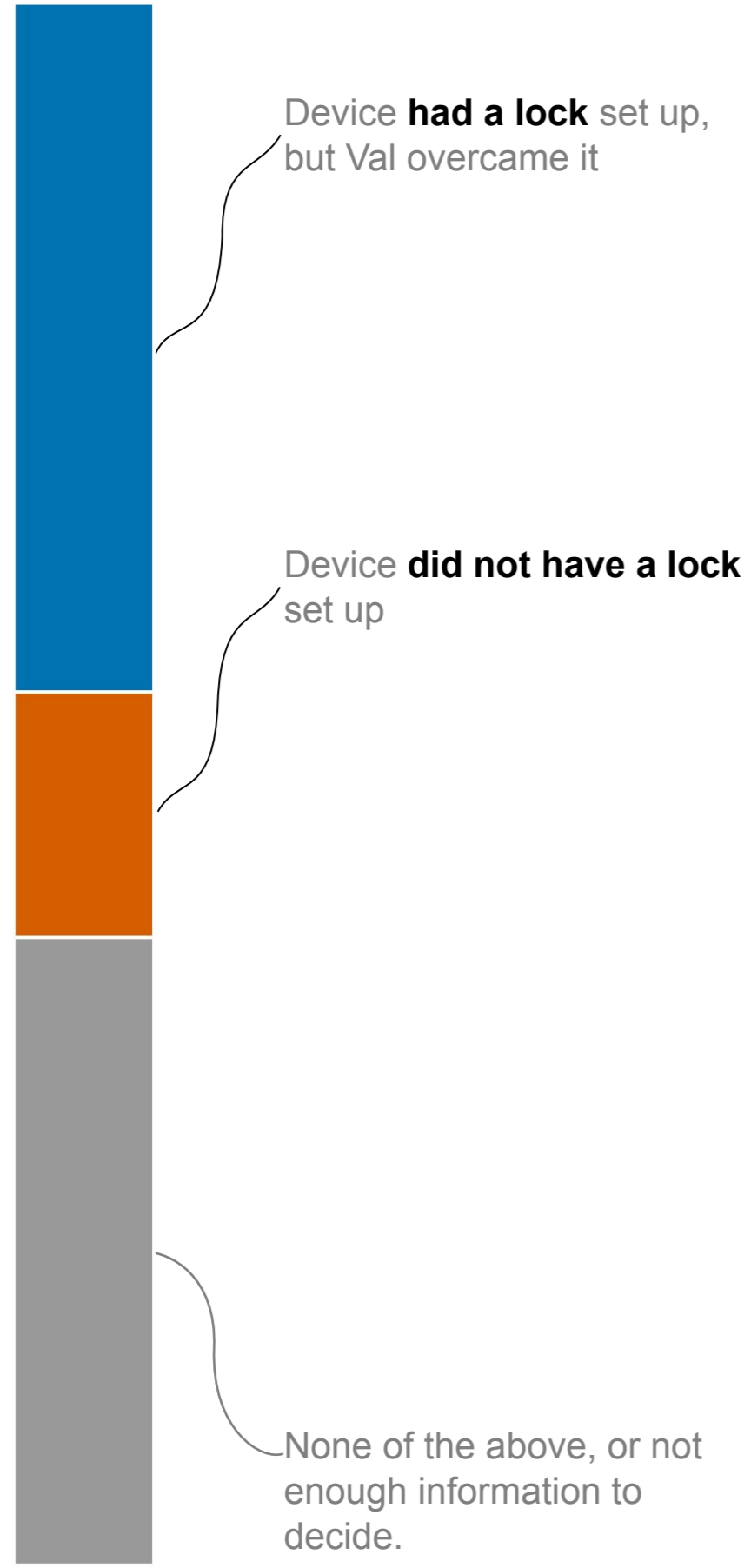
How did the opportunity for unauthorized access come about?



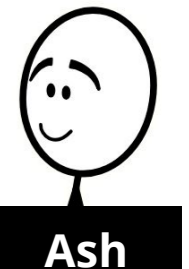
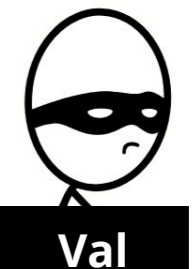
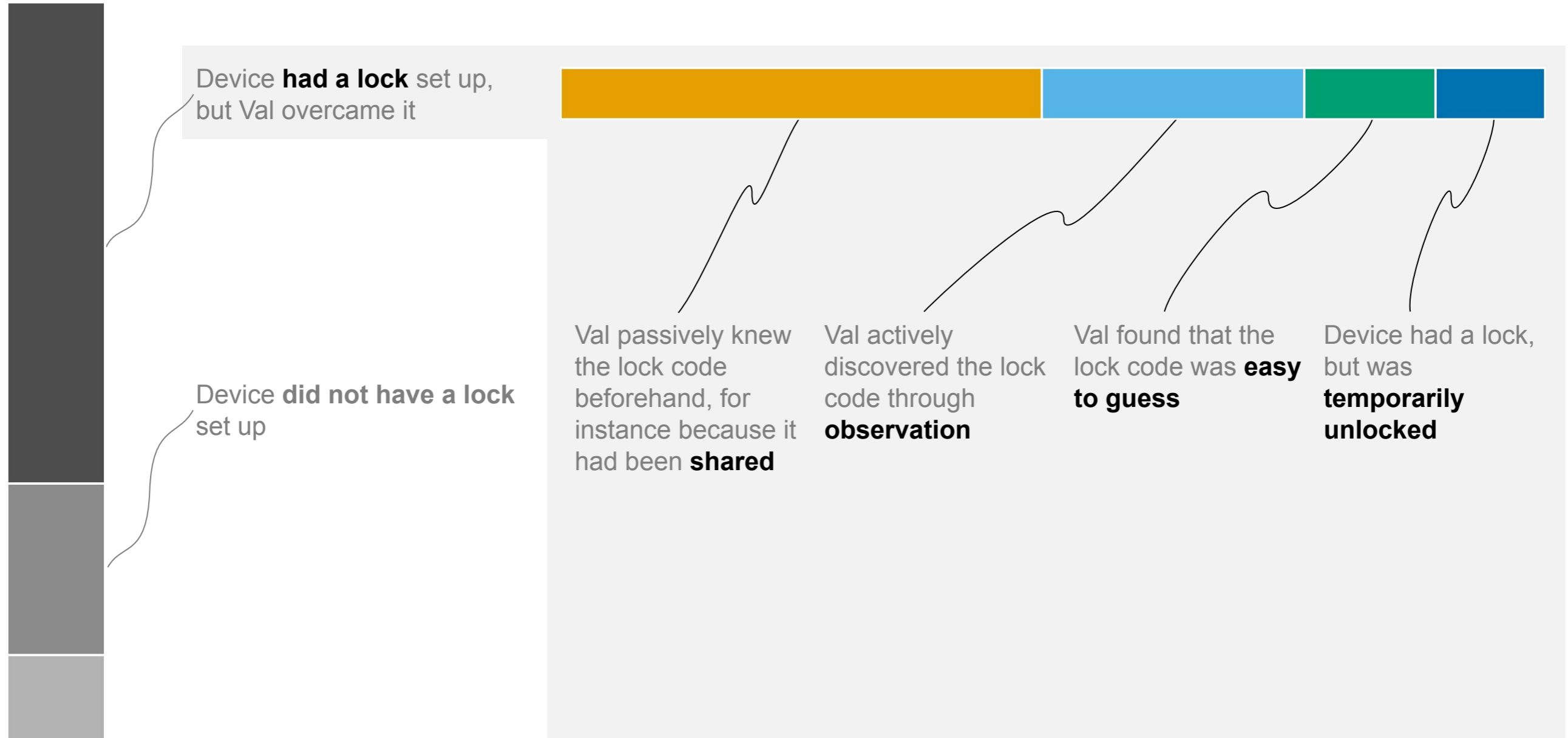
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Did the device have a lock set up?



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What did Val do once they gained access?

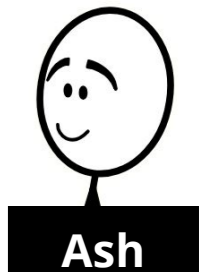


Val inspected archives of **non-public conversations in text form**, such as text messages, emails, instant messages, or chats

Val inspected archives of **visual media**, such as photo galleries

Val inspected **social media activity**

Val did one of 18 **other** types of actions



Making sense of incidents

- Close reading of stories
- Reflexive process of finding latent meanings

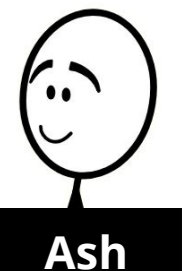
Outcome: two themes



Trust as performative vulnerability

“Ash had nothing to hide but feared not being trusted if they kept their phone with them at all times” - P43

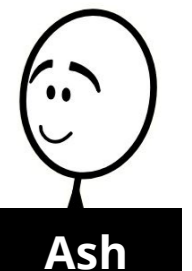
“Val was suspicious. Ash would take their smartphone everywhere including when they were showering. Ash would turn their smartphone off if they had to leave it in a room with Val.” - P75



Trust as performative vulnerability

“Ash discovered what had been done to their phone from unusual battery consumption. **It was the end of their relationship.**” - P1

“Ash found out about what Val did by new apps being open, and the phone being in a different place. **Consequentially, Ash and Val are no longer roommates, and do no longer talk.**” - P45



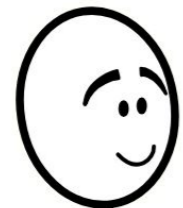
Self-serving sensemaking

“Val is the **controlling type**” - P2

“Val is quite **possessive**” - P5

“Val is a **lunatic**” - P69

“Val has a mind which works in a suspicious manner” - P40



Ash

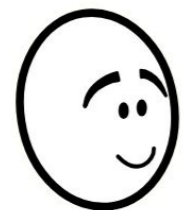
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Ash

“**Val caught Ash** in their bedroom talking on telephone at 3AM” - P53

“**Val was worried** because Ash received many texts in the last days” - P101

“Val started to think about how Ash had seemed distant lately” - P37

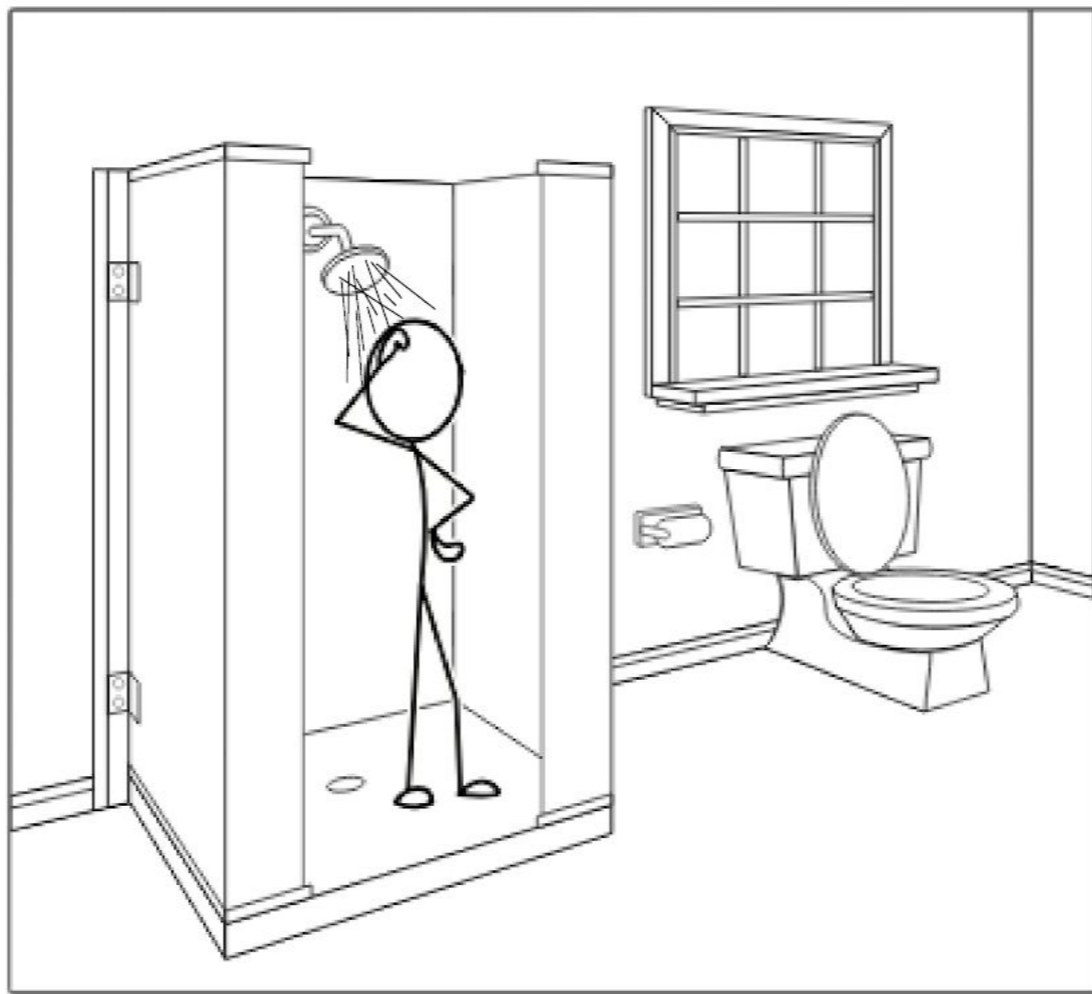
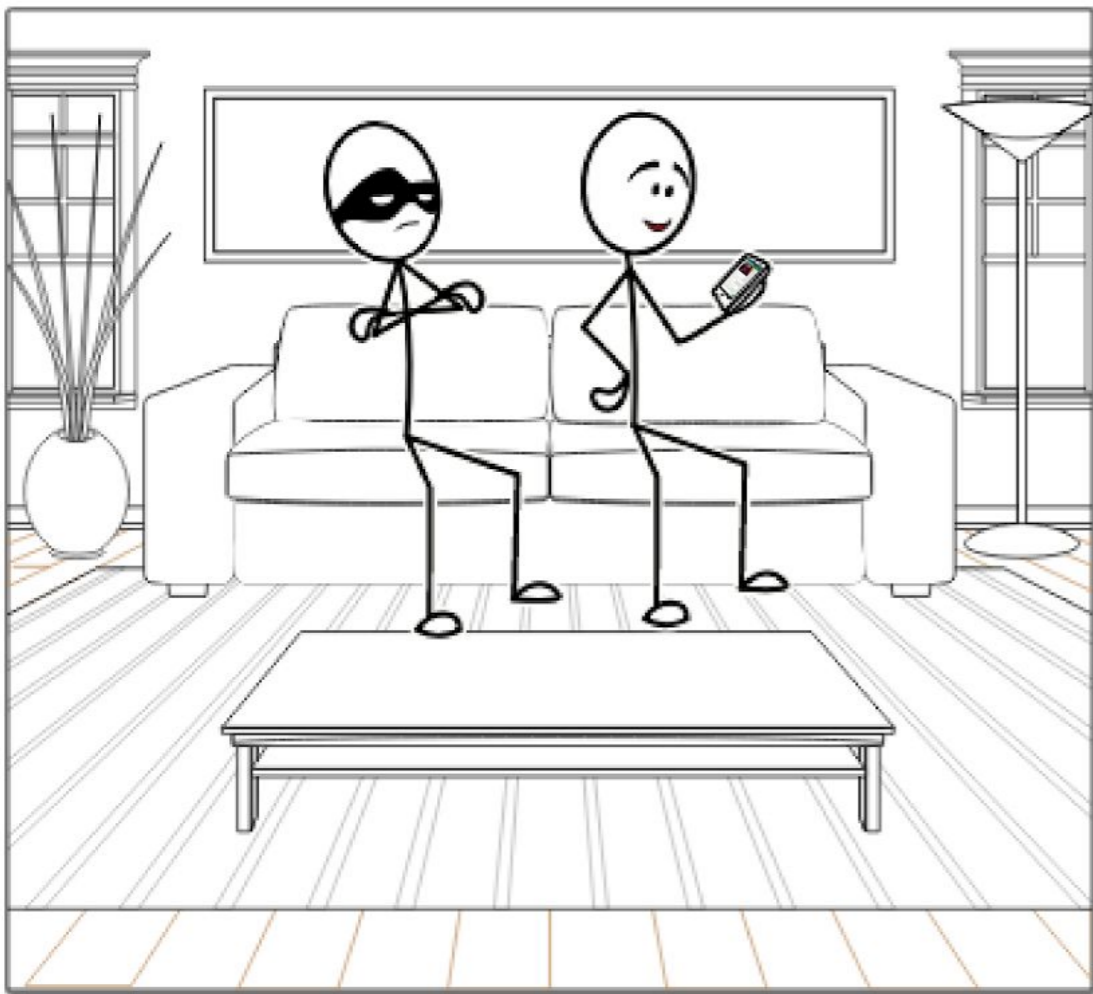


Val

**What are incidents of unauthorized
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When considering user-facing security technologies:

Model for the possibility of non-stranger access



A "showertime attack"

When considering user-facing security technologies:

Account for the possibility of non-stranger access

Ask: how can this be used to signal trust?

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We explored:

- What happens in incidents of unauthorized access to smartphones
- How people's conceptions of interpersonal trust interacts with security

When thinking about user-facing security technologies:

- Build threat models accounting for non-stranger access
- Ask: how can this be used to signal trust?

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