

Individuals' Feelings about Online Tracking and their Protective Behaviour across Gender & Country

“I feel invaded, annoyed, anxious and I may
protect myself”

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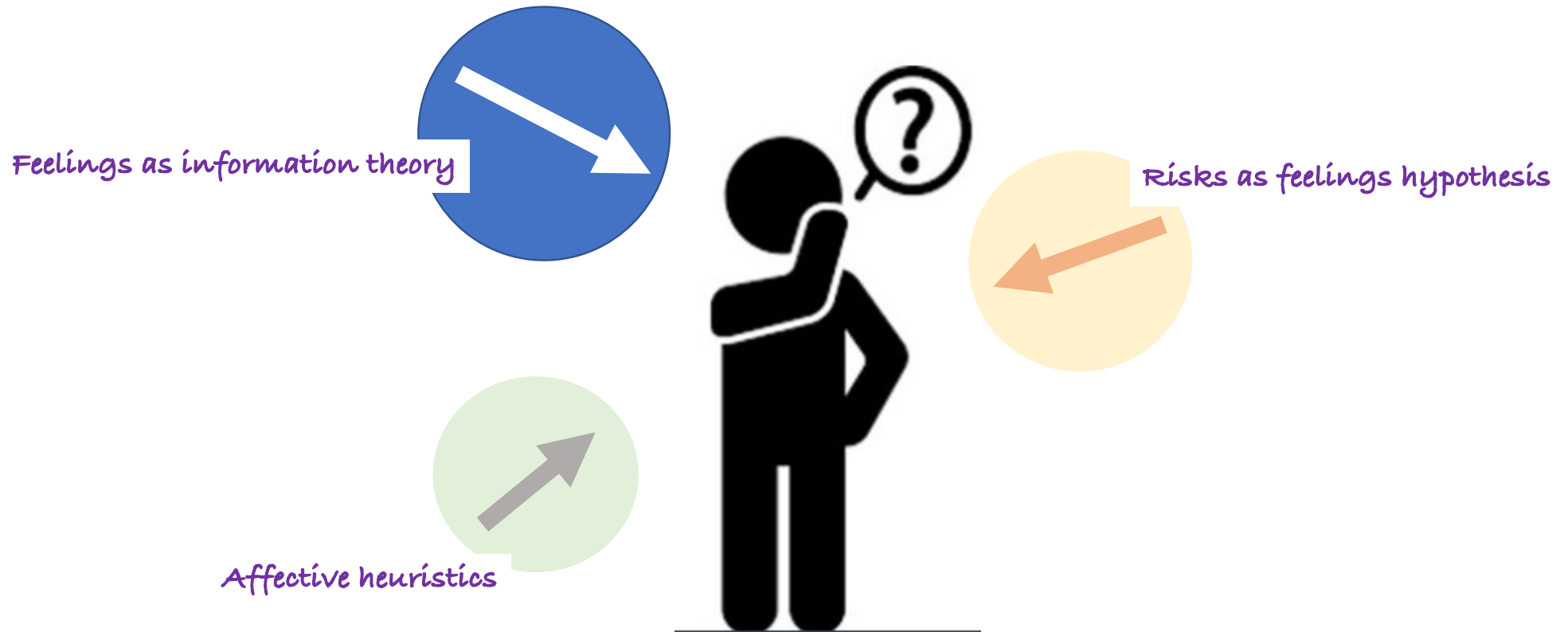
Online Tracking Context

- The general public opinion in national surveys as reported in the UK and Europe is that **tracking online is a privacy concern** for most citizens ([Oll, 2016](#); [EU Commission, 2015](#)).
- However, previous research shows that individuals have **inaccurate and incomplete mental models** of the mechanics of behavioural advertising ([Yao et al., 2017](#)) and have **misconceptions about the purpose of cookies** ([McDonald et al., 2010](#)).
- Users' mental models of tracking (that is their cognitive evaluation of tracking) **only weakly relate** to their use of tracking protection, such as browser extensions ([Mathur et al., 2018](#)).

Privacy as a Cognitive and / or Affective Process?



Decision-Making Models



Survey to investigate how feelings associate with / impact protective actions

- Online survey on Prolific Academic ran in 2020
- Sample size: N = 614
- n = 307 women, n = 299 men ([Oomen et al., 2008](#); [Park et al., 2015](#)).
- n = 209 UK, n = 202 Germany, n = 203 France ([Statista, 2019](#); [Coopamootoo, 2020](#)).

- Data collection: qualitative elicitation
- Analysis: inductive content analysis and quantitative methods

Women / Men demographics comparison

- Age: (Similar) mean = 31 years old
- Education level: approximately similar number of high schoolers, college graduate, undergrad, masters or PhD graduates
- Ethnicity: (Similar) 86% Caucasian

UK / GE / FR demographics comparison

- Age: UK mean = 35; GE mean = 29; FR mean = 27
- Education level: UK had a higher number of college graduate, undergrads; FR had a higher number of masters or PhD graduates
- Ethnicity: (Similar) 80% - 93% Caucasian

Research Question 1

**How do individuals feel wrt 3rd party tracking?
(given their gender & country differences)**

4 categories of feeling tones

**Generally Not
Okay /
Negative**

**Sometimes
Okay /
Sometimes
Not-Okay**

**Generally
Okay/
Indifferent**

Other

**Generally Not
Okay /
Negative**

4.6 % not okay

UK20 *“I don't like it and I don't like other
companies having my information”*

Generally Not Okay / Negative

4.6 % not okay

17.8 % boundary loss, a
sense of invasion

UK85 "***this is a violation of privacy and of freedom***";
UK51 "***I feel violated and as though my privacy and security is not respected***";
GE27 "***exposed, exploited***";
FR143 "***I feel this is very intrusive and it is not very moral***";
GE135 "***Unsafe and somewhat inhuman, it feels like I'm treated as just another customer for product XY***";
GE7 "***unsafe. I feel naked. 'transparent human' we call that in German [sic]. I feel like nothing is private anymore, even if I seek the anonymity of the internet for a reason***"

Generally Not Okay / Negative

4.6 % not okay

17.8 % boundary loss, a
sense of invasion

8.6 % unfair

UK8 "**betrayed** by the companies that sell my data",
UK25 "... it feels a little **dishonest/sneaky**",
GE46 "surveilled and **powerless**. I have no opportunity
to disagree to the tracking except not using the
website..."
GE109 "...that I do not have privacy on the internet
that I want or that I am supposed to believe I have. I
do not want companies to track my activities on the
internet or sell my data but I need to agree to do so in
order to use some services on the net";
FR4 "...Feel like we are **trapped**"

Generally Not Okay / Negative

4.6 % not okay

17.8 % boundary loss, a
sense of invasion

8.6 % unfair

12.5 % annoyance

UK10 "*irritated, unsecure, harassed, **annoyed**, not happy for them using my information without permission*";

UK64 "***annoyed by it**, that I'm being spied on*",

GE50 "***Bothered, annoyed, stalked, disrespected***",

GE44 "*Mostly I feel that third-party cookies are annoying and not nearly transparent enough, even if you're notified of them once you visit a website*"

Generally Not Okay / Negative

4.6 % not okay

17.8 % boundary loss, a
sense of invasion

8.6 % unfair

12.5 % annoyance

12.4 % anxiety

UK18 "That it is a **pretty scary thing** seeing how much of yourself you leave on the Internet...",
UK41 "**Worried** that a third party that I don't know about is accessing my information"
UK142 "...it is a bit **spooky** to find links to things that you have been searching for and I do not like it at all".

Generally Not Okay / Negative

4.6 % not okay

17.8 % boundary loss, a
sense of invasion

8.6 % unfair

12.5 % annoyance

12.4 % anxiety

9.1 % discomfort

UK28 "**not comfortable**, i feel them to be intrusive. We don't have a choice, if we want to use a site ...",
GE23 "**Uneasy**, I don't want to have Facebook tracking me on pages other than their own"

Generally Not Okay / Negative

4.6 % not okay

17.8 % boundary loss, a
sense of invasion

8.6 % unfair

12.5 % annoyance

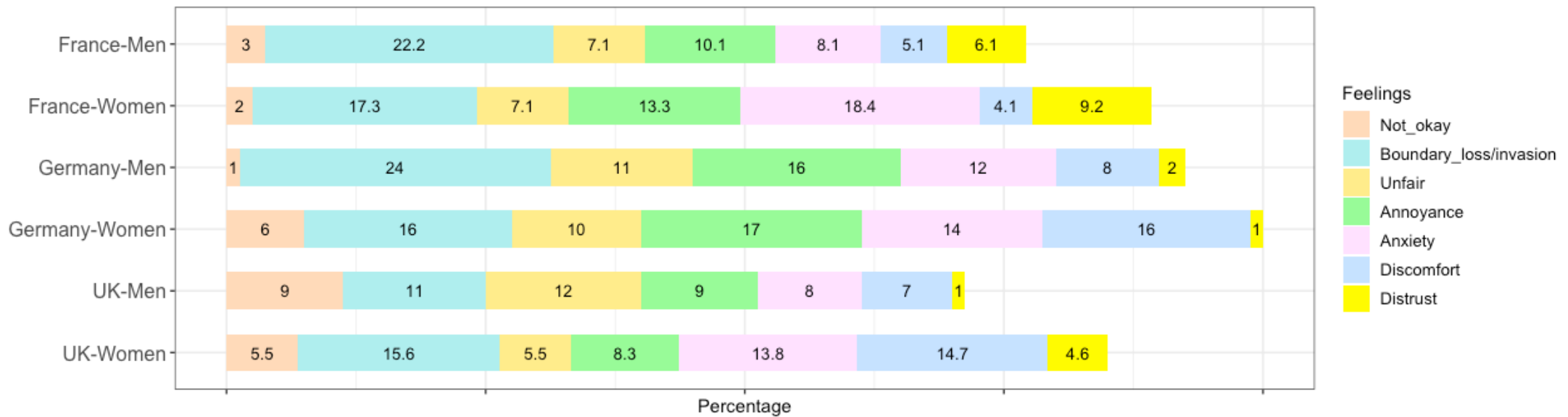
12.4 % anxiety

9.1 % discomfort

3.9 % distrust

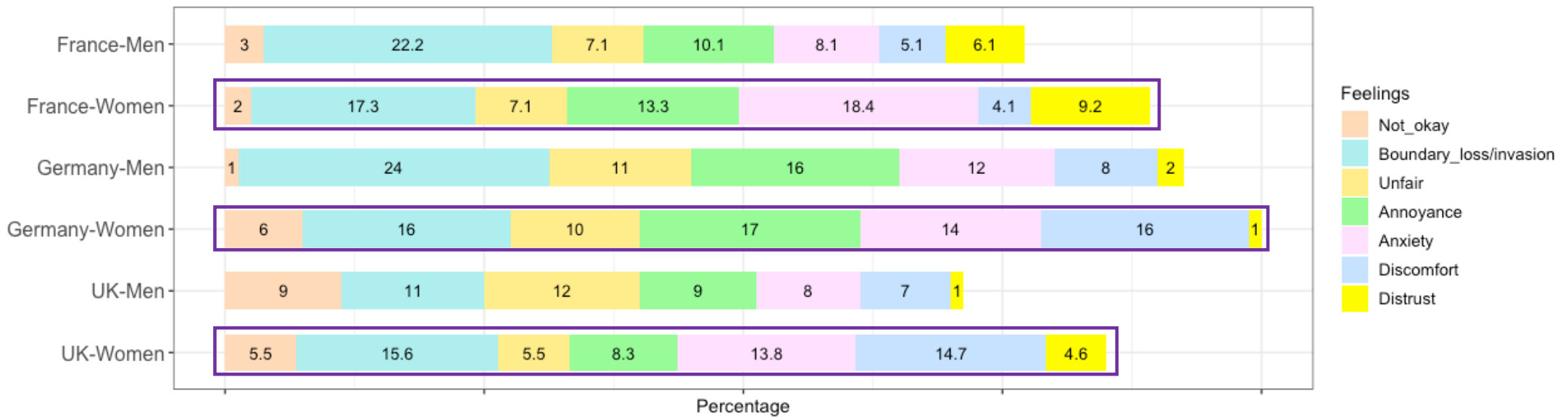
GE81 *"I feel it is a very unknown and **suspicious business**. Since you mostly agree via one click on a page long agreement that you haven't read carefully which results in unknow [sic] persons and institutions using your information",*
FR32 *"I feel **really suspicious**, I do not rely on cookies and block them as possible as I can",*
FR54 *"**distrustful**, attentive, but non-paranoid"*

Visual of Not-okay / Negative tones



% at each country-gender group ~ n=100

Visual of Not-okay / Negative tones



% at each country-gender group ~ n=100

**Sometimes
Okay /
Sometimes
Not-Okay**

7.7 % ambivalent

UK6 *"It can be **okay sometimes but it's a bit bad that it can happen**";*
UK58 *"A **little intruded on but accept** its a part of how the internet works";*
GE97 *"**Ambivalent** because it enables more free services, but can also be intrusive on privacy".*

2.9 % okay, if

GE35 *"**Okay** about collection of user data for advertising purposes **as long** as it is purely commercial and not political";*
UK23 *"**It's ok as long as it's not intrusive** and no data is kept".*

2.3 % okay, protected

FR177 *"**I do not care because I use an adblocker**";*
GE64 *"**relaxed because I block the most of it using DNS based blocking and adblockers**".*
FR52 *"**I use Brave for this very reason ...**".*

Generally Okay/ Indifferent

4.7% okay

FR10 "I understand that third party tracking is a part of what makes a lot of content on the internet free. **I feel ok with it**"; UK2 "**I feel its alright i have no bad feelings towards**"; GE13 "**okay with it** since it's only my online behaviour that is being obersevd [sic]. In addition most of the data collected is used for machine learning and not reviewed by actual humans"; FR88 "**comfortable, I have no problem with that**"; GE130 "**I sometimes like advertisements that carter to my taste**"

2.9% indifferent

FR64 "I feel a **bit indifferent** to be honest", UK45 "**Not bothered**", GE131 "With regards to third-party tracking, I feel like i couldn't care less, honestly".

0.7% necessity

UK49 "That it is **just a necessary part of being online** these days", UK119 "The amount of information out there is way too much to understand for a generic user. **I accept that using the internet entails such addition to it**"

1.6% none

UK65 '**Have no feelings**', GE124 '**no particular positive or negative emotion**', FR42 '**I don't feel any particular way about it**'.

Other

2.9% should be regulated

FR43 "I think it's a good idea **but it has to be regulated**",
GE196 "very dissatisfied. **Should be forbidden!**", UK194
**"It should be illegal. I don't see how it can even be legal in
the first place,** UK123 "It is impossible to avoid as they
cookies [sic] on the on every website which all
communicate with each other this **should be banned,**
GE103 "Like it should be opt-in only", FR40 "**that it should
be made transparent who can track us and for what
reason, with an opt out**",

5.4% not aware

UK48 "**No idea what this is,** I don't really take any interest in
being safe on the Internet I mean I probably should but I don't",
or UK77 "**I don't know enough about this**".

Research Question 2

What protective actions do individuals take to protect from tracking?

Protective Actions

34.7% No Action

27.7% Use an Extension

11.1% Use a VPN

2.6% Use anti-malware,
anti-virus

16.6% Clear Cookies

9.6% Use builtin browser
settings

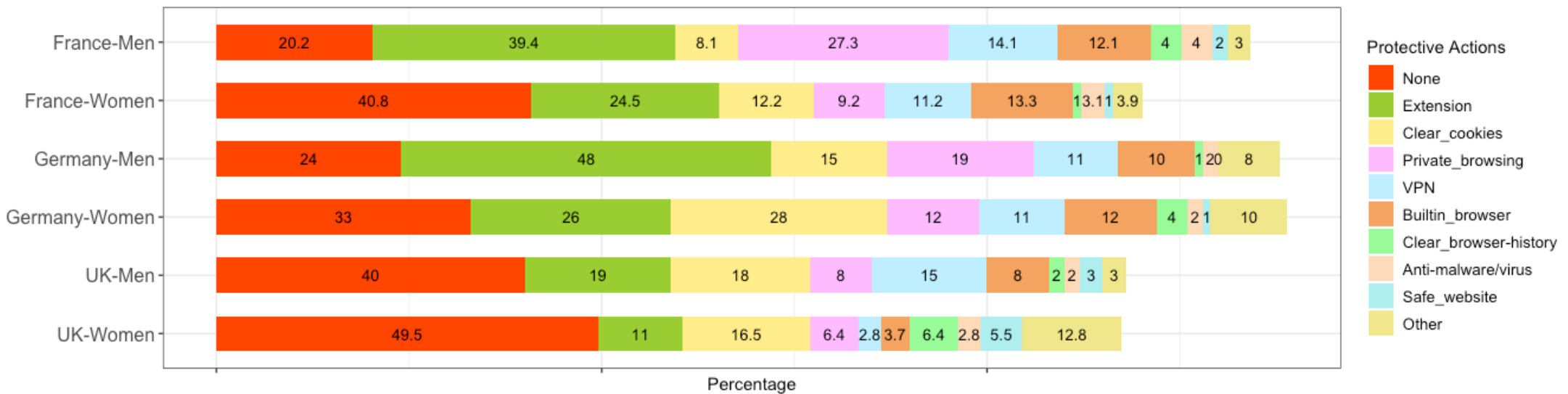
2.1% Use `safe` websites

13.5% Use private
browsing / privacy-
oriented browser

3.3% Clear history

8% Other

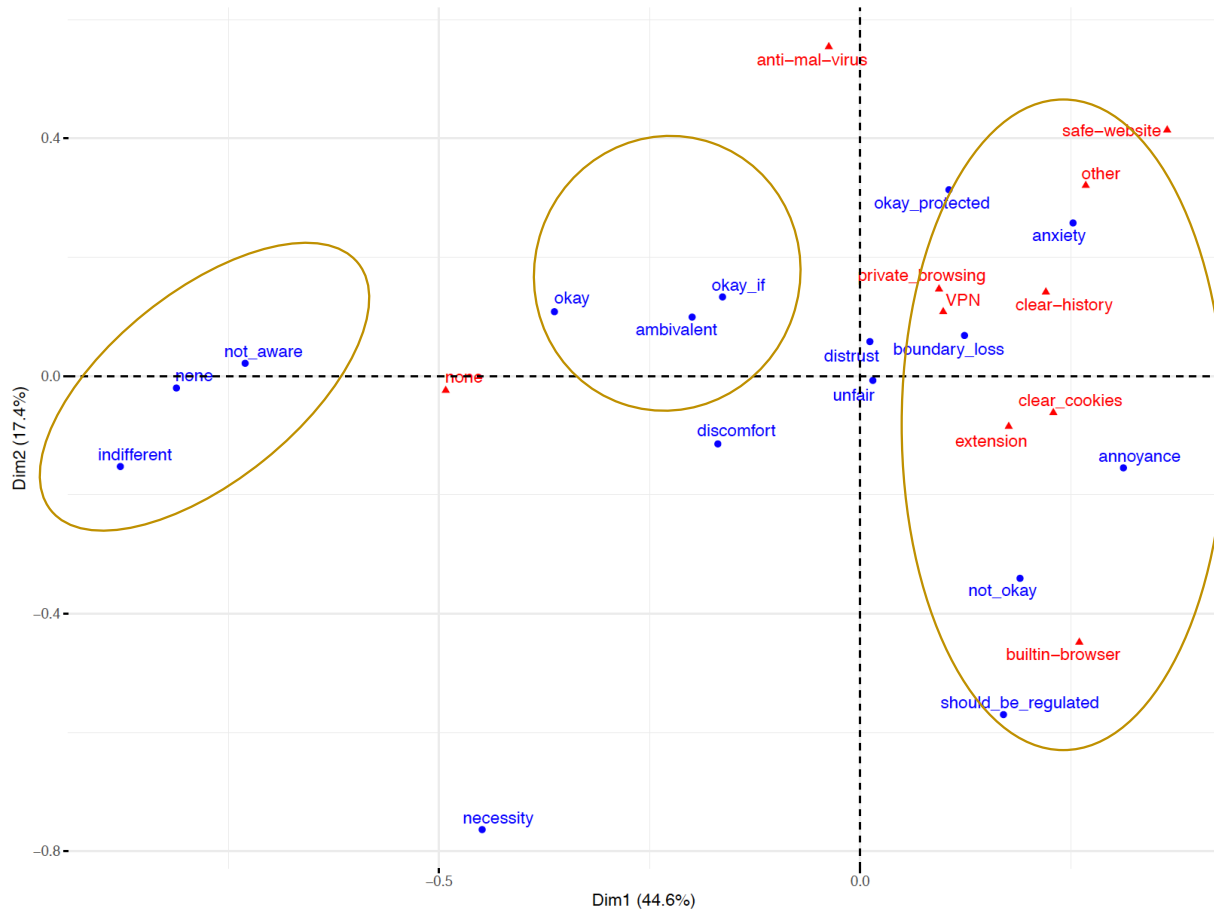
Visual of Protective Actions



% at each country-gender group ~ n=100

Research Question 3

How are individuals' feelings about third-party tracking associated with their protective actions?



Feeling tones in blue / Protective actions in Red

Research Question 4

How do individuals' feelings about third-party tracking predict whether they take protective actions or not?
(given their gender and country differences)

- *Action ~ (1 | Participant) + Gender + Country + NegativeFeelingTones*

	Odd Ratio	p-value
Men (vs Women)	2.05	< .001
Germany (vs UK)	1.83	.006
France (vs UK)	1.78	.008
Not_okay: true (vs false)	3.28	.012
Boundary_loss: true (vs false)	2.53	.001
Unfair: true (vs false)	1.83	.070
Annoyance: true (vs false)	3.84	< .001
Anxiety: true (vs false)	3.72	< .001
Discomfort: true (vs false)	1.50	.206
Distrust: true (vs false)	2.08	.121

Take-aways

- This study improves on cognitive-oriented investigations of tracking and user privacy
 - feelings can provide useful inputs to judgments, decisions and behaviour when individuals' cognitive evaluation about a situation or event is inaccurate or incomplete
- Indications of a '**privacy gender gap**'
- UK individuals reportedly less active in protective actions against tracking, and provided less reports of negative feelings

Implications

- **Researchers:** to deepen knowledge into the factors between particular negative feeling and protective action, such as awareness of and the obstacles to using protective methods and the support needed.
- **Privacy technology designers & training/advice providers:** to understand who are more receptive (given their feelings) to privacy technologies, and to customise ways to up-skill individuals given their characteristics of gender and country.
- **Regulators and national data protection authorities:** to set guidelines for actual fair practices, such as to avoid dark patterns that nudge users' acceptance despite their feelings and concerns, and for companies and service providers to demonstrate these fair attributes to customers.

Thank You!

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