



# Cookie Monsters on Media Websites: Dark Patterns in Cookie Consent Notices

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## Resume for Esther van Santen

Currently:

- M.Sc. Candidate in Business Information Technology, TH Brandenburg
- Assistant researcher, Fraunhofer Institute for Open Communication Systems
  
- B.Sc. in Business Administration – Digital Economy, BHT Berlin
- Student IT Consultant at KPMG and BearingPoint



# Agenda

1. Research Approach
2. Research Questions
3. Concept: Taxonomy by Gray et al.
4. Results
5. Limitations



# 1. Research Approach

- Topic of interest: Dark patterns in cookie consent notices
- Methods: Quantative visual analysis, qualitative and quantitative evaluation
- n = 100 media websites (public media, newspapers, magazines, ...)
- 50 German, 50 US-American websites
- Set of websites fixed before start of analysis



## 2. Research Questions

- RQ1: Which already described dark patterns can be found in consent notices on media websites?
- RQ2: Are there dark patterns that have not yet been described and could therefore be specific to cookie consent notices or to media websites?
- RQ3: Are there country-specific differences in which dark patterns occur in cookie consent notices on German and U.S. American websites?



### 3. Concept: Taxonomy by Gray et al.

- Nagging
- Obstruction
  - Roach Motel
  - Price Comparison Prevention
  - Intermediate Currency
- Sneaking
  - Forced Continuity
  - Hidden Costs
  - Sneak into Basket
  - Bait & Switch
- Interface Interference
  - Hidden Information
  - Preselection
  - Toying with Emotion
  - False Hierarchy
  - Disguised Ad
  - Misdirection
- Forced Action
  - Social Pyramid
  - Privacy Zuckering
  - Gamification

Source: Gray et al. 2018, p. 5 – 8.



### 3. Concept: (Reduced) Taxonomy by Gray et al.

- Nagging
- Obstruction
  - Roach Motel
  - ~~Price Comparison Prevention~~
  - ~~Intermediate Currency~~
- Sneaking
  - ~~Forced Continuity~~
  - Hidden Costs
  - ~~Sneak into Basket~~
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- Interface Interference
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- Forced Action
  - ~~Social Pyramid~~
  - Privacy Zuckering
  - ~~Gamification~~



### 3. Concept: (Reduced) Taxonomy by Gray et al.

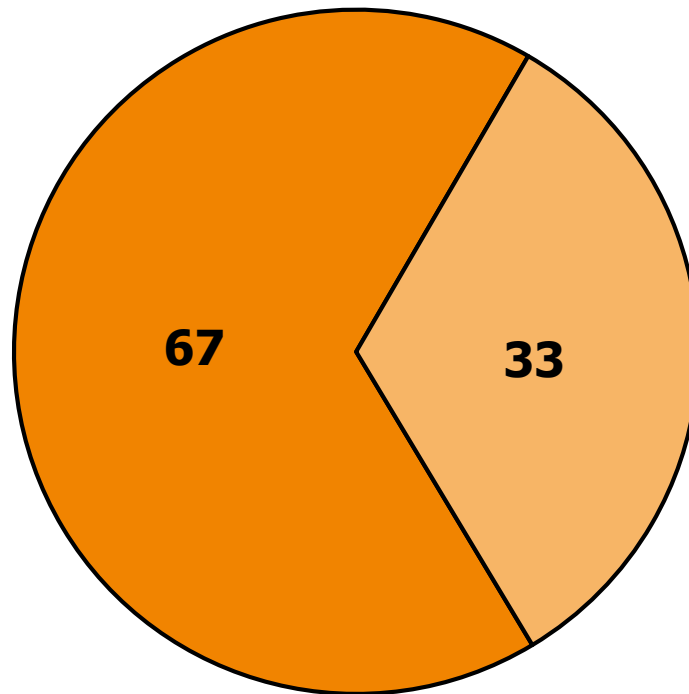
- Nagging
- Obstruction
  - Roach Motel
- Sneaking
  - Hidden Costs
  - Bait & Switch
- Interface Interference
  - Hidden Information
  - Preselection
  - Toying with Emotion
  - False Hierarchy
  - Misdirection
- Forced Action
  - Privacy Zuckering





## 4. Results: Presence of Cookie Consent Notices

All Websites (n = 100)

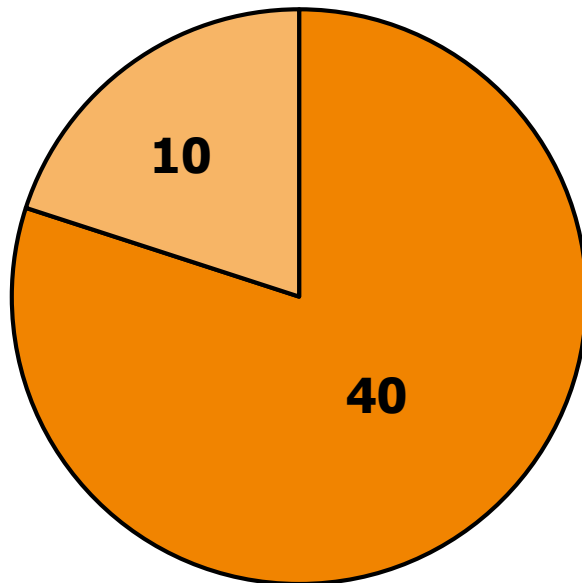


■ Yes ■ No



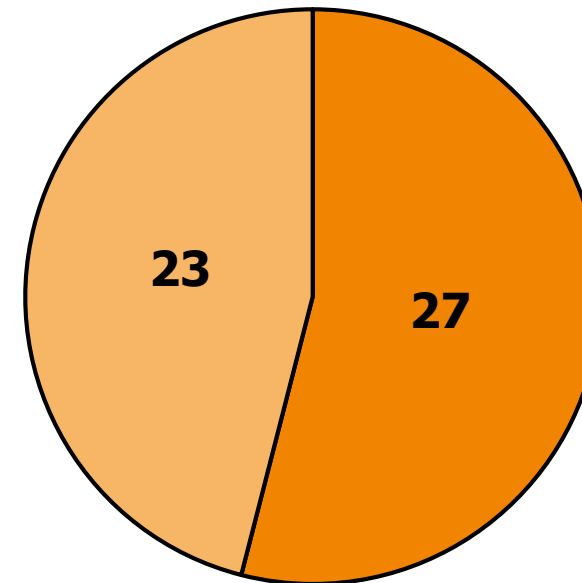
## 4. Results: Presence of Cookie Consent Notices

German Websites (n = 50)



■ Yes ■ No

US-American Websites (n = 50)

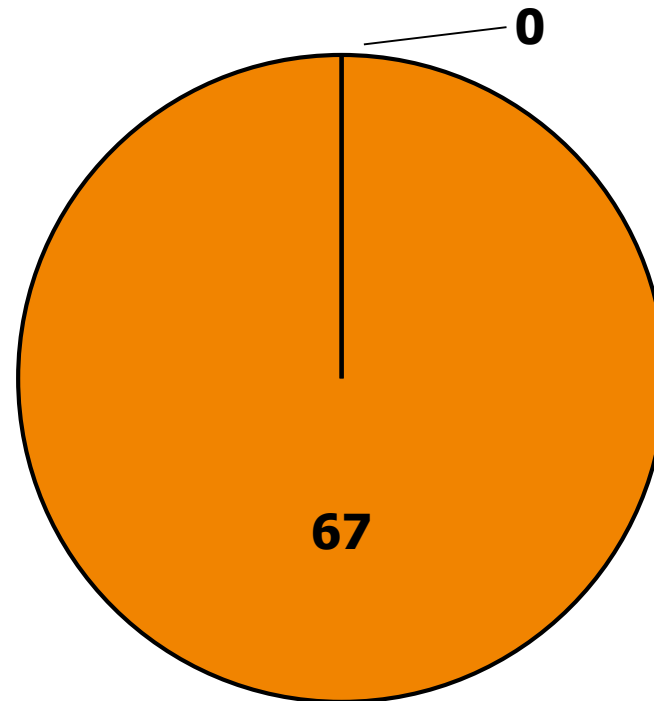


■ Yes ■ No



## 4. Results: Presence of Dark Patterns in Cookie Notices

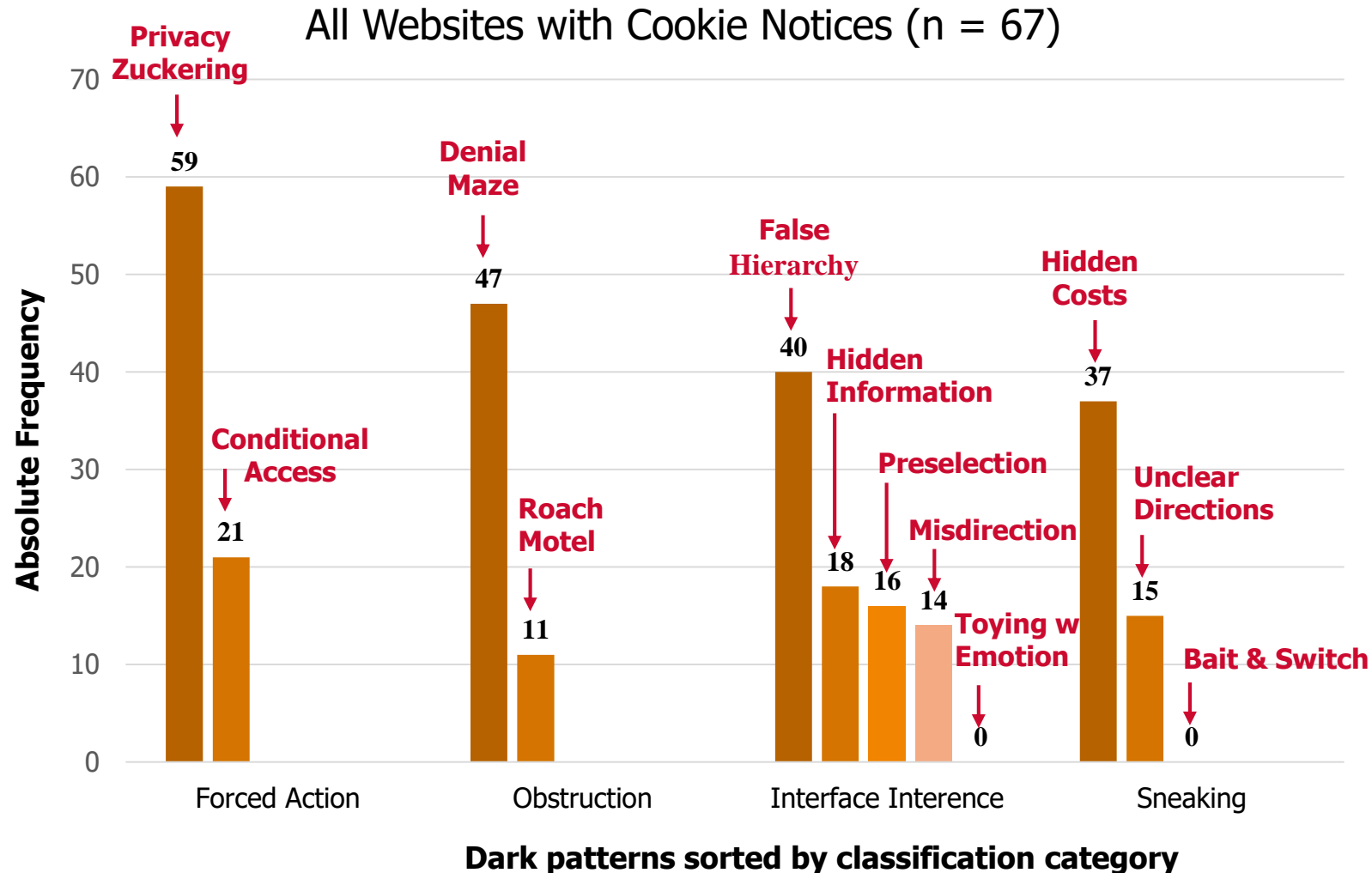
All Websites with Cookie Notice  
(n = 67)



■ Yes ■ No



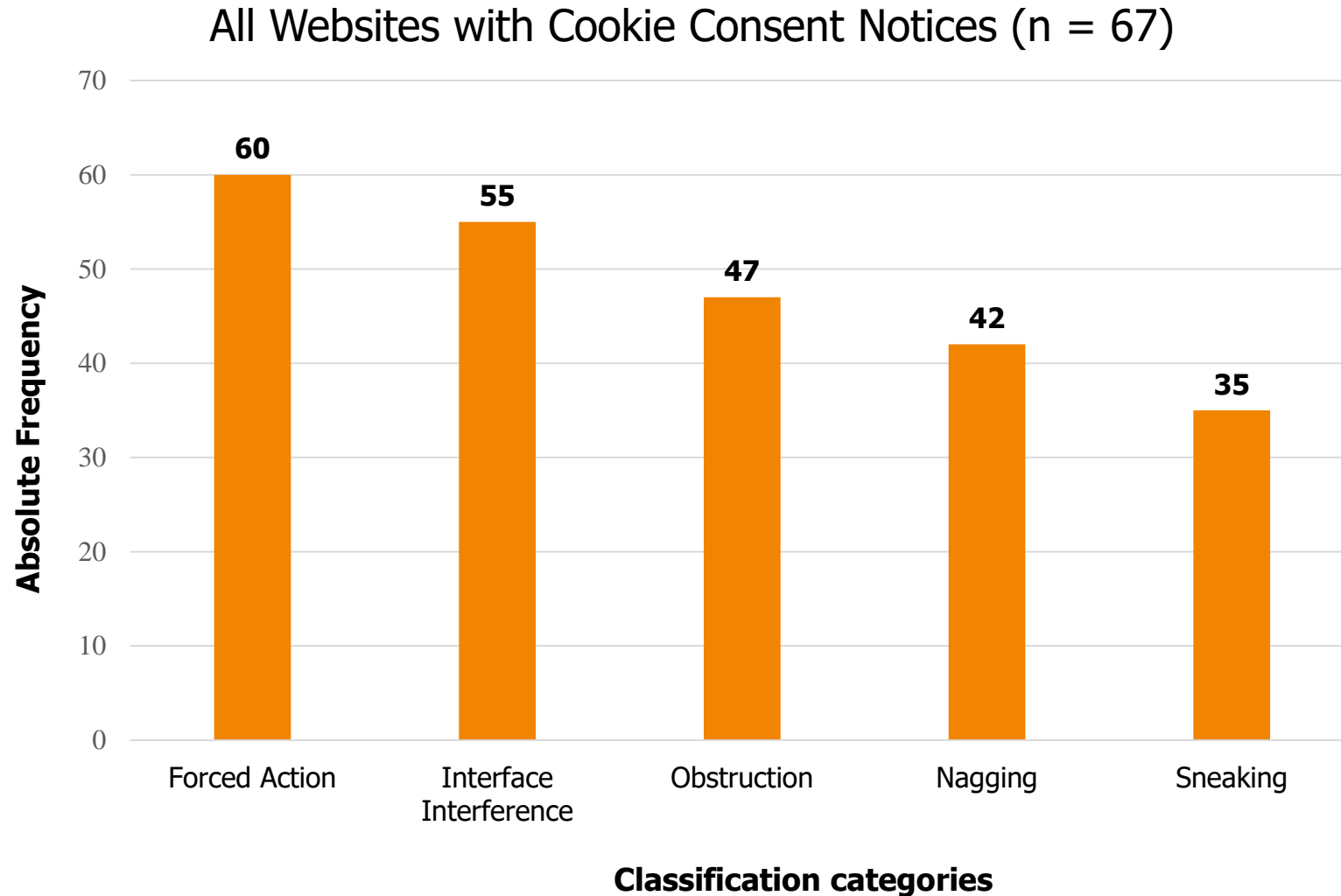
## 4. Results: Dark Pattern Frequency Analysis



- Interface Interence: Many sub-patterns, but not highest main pattern occurrence
- 0 occurrences for:
  - Toying with Emotion (Int. Int.)
  - Bait & Switch (Sneaking)



## 4. Results: Dark Pattern Category Frequency Analysis





## 4. Results: Addition of 3 Dark Patterns

<i>Gray et al.</i>	CAT.
Nagging	Interface Interference
Obstruction	Interface Interference
Forced Action	Sneaking
Hidden Information	<b>PAT.</b>
Preselection	
Toying with Emotion	
False Hierarchy	

<i>Brignull</i>	CAT.
None	
Misdirection	<b>PAT.</b>
Bait & Switch	
Hidden Costs	
Roach Motel	
Privacy Zuckering	

<i>Own</i>	CAT.
None	
Denial Maze	<b>PAT.</b>
Unclear Directions	
Conditional Access	

Source: Gray et al. 2018, p. 5 – 8.



## 4. Results: Addition of 3 Dark Patterns

- Nagging
- Obstruction
  - **Denial Maze**
  - Roach Motel
- Sneaking
  - **Unclear Directions**
  - Bait & Switch
  - Hidden Costs
- Interface Interference
  - Hidden Information
  - Preselection
  - Toying with Emotion
  - False Hierarchy
  - Misdirection
- Forced Action
  - **Conditional Access**
  - Privacy Zuckering



## 4. Results: Dark Pattern “Denial Maze”

- Occured on 46 websites (out of 67)

*It is **more complicated to deny** than to accept, therefore the user is **persuaded into accepting**.*

- No button to decline with one click
- Unclear where to find option to decline



Image 1: No button to decline (freitag.de)



Image 2: Combined options (n-tv.de)



Show Purposes

Image 3: Unclear where to find option to decline (time.com)



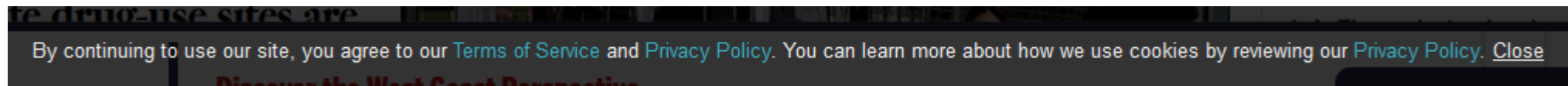


## 4. Results: Dark Pattern “Conditional Access”

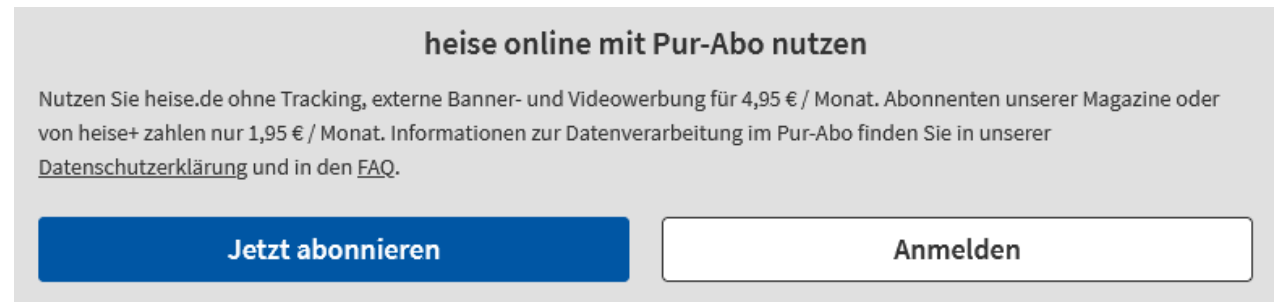
- Occured on 21 websites (out of 67)

***Access is only given, if a person accepts undesirable consequences.***

- Information about cookie use without any choice
- Refusal of cookies only possible by paying for it (only on German websites)



**Image 1: No choice approach in cookie banner (latimes.com)**



**Image 2: Business model approach in cookie banner (heise.de)**



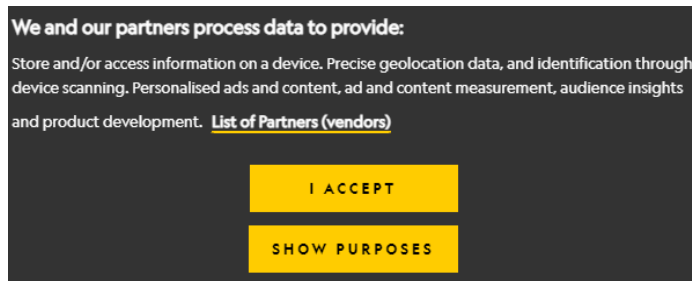
## 4. Results: Dark Pattern “Unclear Directions”

- Occured on 18 websites (out of 67)

*A **path** which is **required** by the user is **concealed**.*

- Cookie management button is misleadingly named (e.g. “show purposes”)
- Link to more specific data processing information is not labelled sufficiently (e.g. “here”)

This website uses cookies to improve your experience. We'll assume you're ok with this, but you can opt-out if you wish. [Accept](#) [Read More](#)

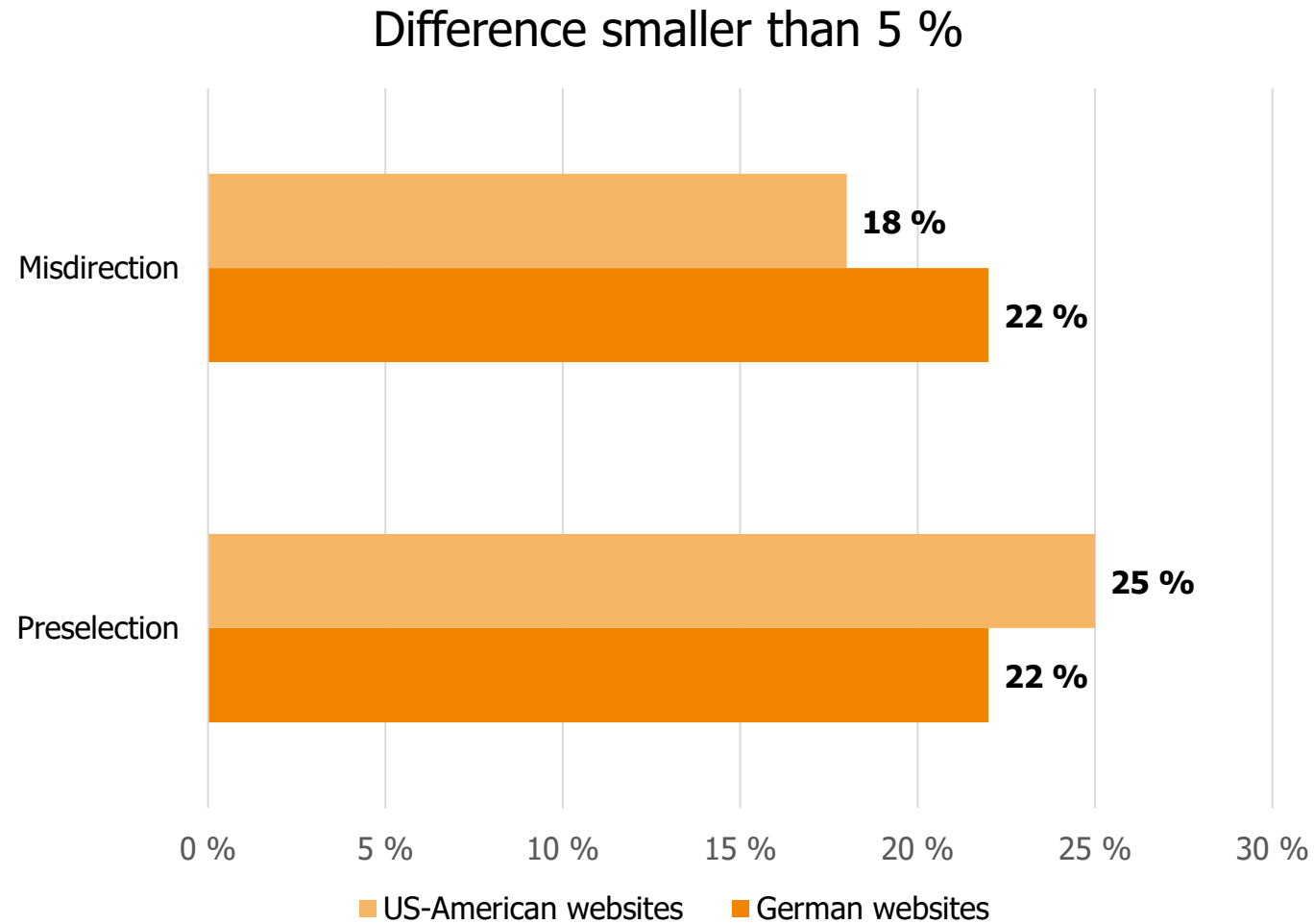


**Image 1: Misleadingly names button (stern.de)**

**Image 2: Link not labelled sufficiently (newphilosopher.com)**

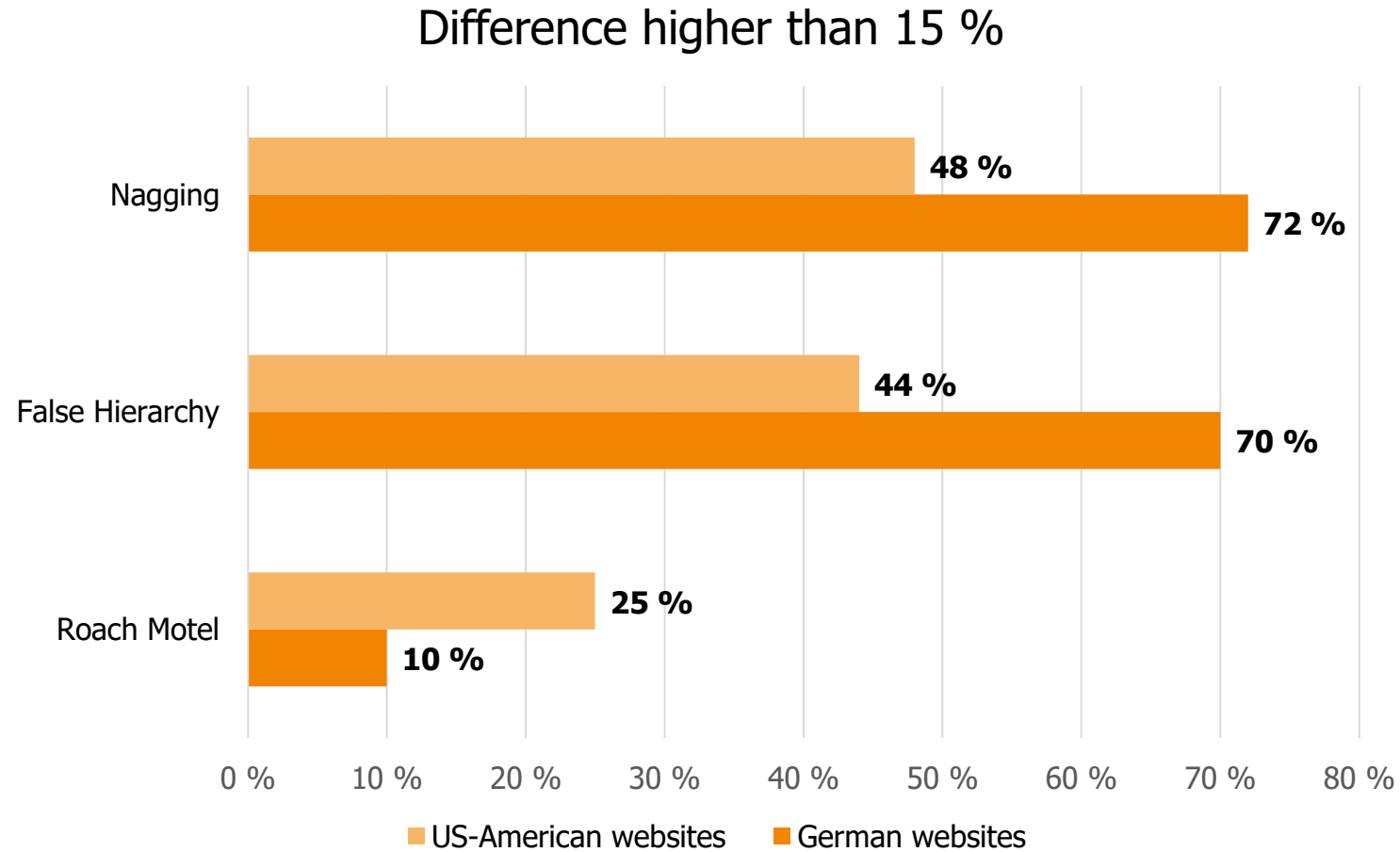


## 4. Results: Comparative Results of German and US websites





## 4. Results: Comparative Results of German and US websites





## 4. Results: Comparative Results of German and US websites

- **Business model:** Access through personal data via cookies OR money for subscription
  - US websites = 0 times
  - German websites = 9 times

Durch das Klicken des „Zustimmen“-Buttons stimmen Sie der Verarbeitung der auf Ihrem Gerät gespeicherten Daten wie z.B. persönlichen Identifikatoren oder IP-Adressen für diese Verarbeitungszwecke zu. Darüber hinaus willigen Sie gem. Art. 49 Abs. 1 DSGVO ein, dass auch Anbieter in den USA Ihre Daten verarbeiten. In diesem Fall ist es möglich, dass die übermittelten Daten durch lokale Behörden verarbeitet werden. Weiterführende Details finden Sie in unserer [Datenschutzerklärung](#) und im [Privacy-Manager](#), die am Ende jeder Seite verlinkt sind (Cookies & Tracking). Dort können Sie Ihre Zustimmung jederzeit widerrufen.

**Zustimmen**

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**Image: Cookies vs. subscription (heise.de)**



## Limitations

- Research questions too broad, sample size too small
- Law & Tech Check:
  - Which websites without cookie consent notice are legal in doing so?
  - Which websites with cookie consent notice actually do not need one?
  - Which websites support the legal “Do not track” requirement when set so in browser?
- Law & Ethics Check:
  - Which dark patterns are clearly illegal, which “just” highly unethical?
  - Which websites illegally do not contain a privacy statement?



## References

GRAY et al. (2018): The Dark (Patterns) Side of UX Design. Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, p. 1–14. <https://doi.org/10.1145/3173574.3174108>.