



Stanford University  
Human-Centered  
Artificial Intelligence



# Dark Patterns & Manipulative Design

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# AGENDA

01 Defining Dark Patterns

02 Context: Where To Find  
Them

03 How They Work

04 Persuasion vs.  
Manipulation, Coercion, &  
Deception

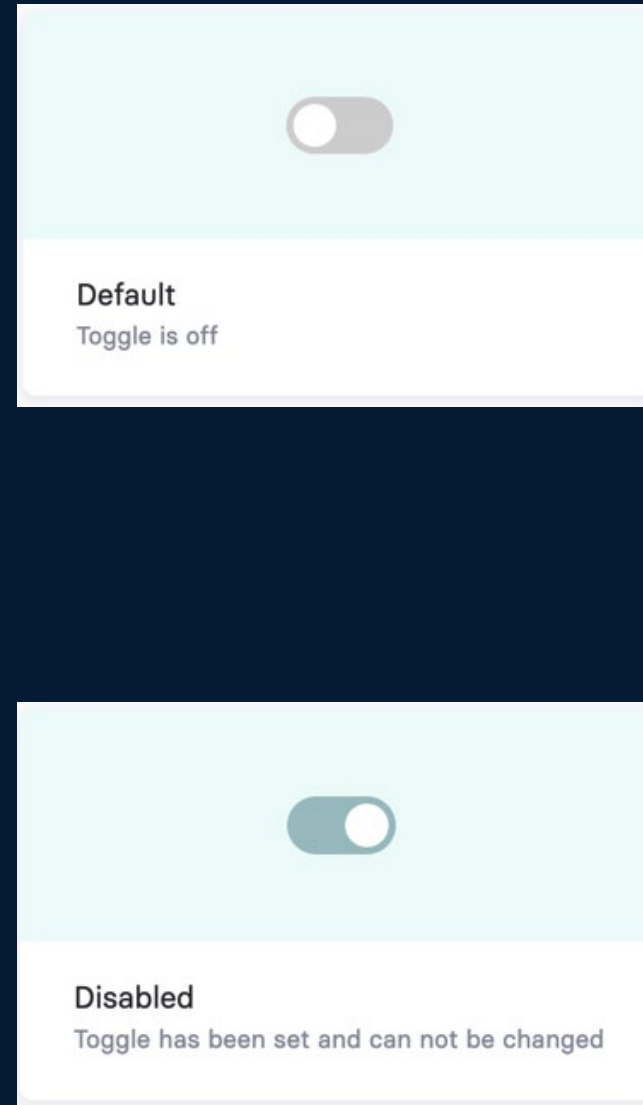
05 Types of Patterns

06 Examples



# What is a design pattern?

“Design patterns are reusable/recurring components which designers use to solve common problems in user interface design.”



Sources: <https://www.interaction-design.org/literature/topics/ui-design-patterns>;  
<https://www.checklist.design/elements/toggle>

# What is a dark pattern?

## DEFINITIONS ARE STILL IN FLUX . . .

“A user interface that has been carefully crafted to trick users into doing things...they are not mistakes, they are carefully crafted with a solid understanding of human psychology, and they do not have the user’s interests in mind.”

- Brignull, *Dark Patterns.org*

“Techniques used to manipulate users to do things they would not otherwise do.”

- *Luguri & Strahilevitz 2021*

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your first order?**

Duh!

I want to pay full price.

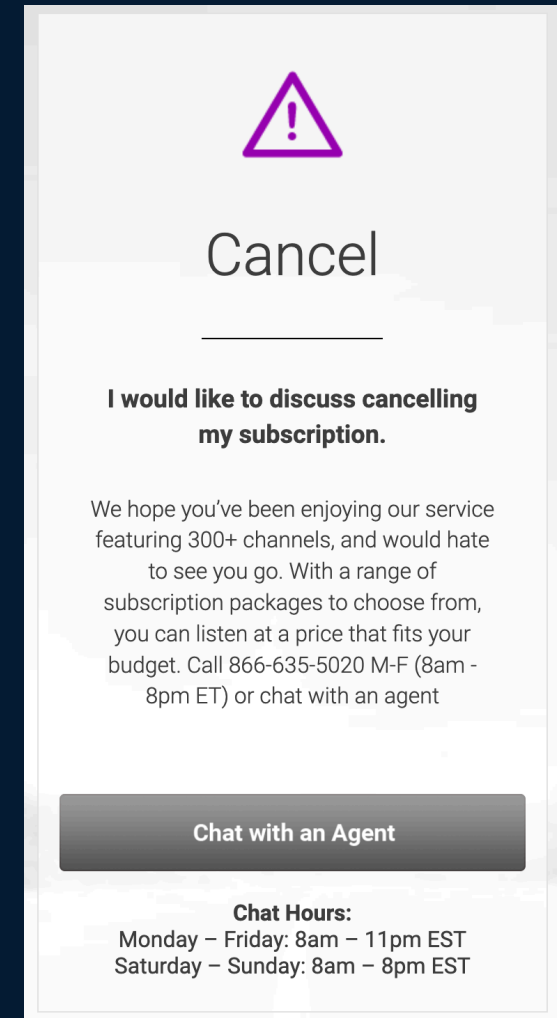
# What is a dark pattern?

FOCUS ON OUTCOMES, NOT  
INTENT

“Dark patterns are user interface design choices that benefit an online service by coercing, manipulating, or deceiving users into making unintended and potentially harmful decisions.”

- Mathur, Mayer, & Kshirsagar 2021

Arunesh Mathur, Jonathan Mayer, and Mihir Kshirsagar in What Makes a Dark Pattern...Dark?: Design Attributes, Normative Considerations, and Measurement Methods. Conference on Human Factors in Computing Systems (CHI '21).



# Dark Patterns in the CCPA & CPRA

## FOCUS ON OPT-OUTS & CONSENT

### CCPA:

California Consumer Privacy Act recently updated regulations: “A business shall not use a method that is designed with the purpose or has the substantial effect of subverting or impairing a consumer’s choice to opt-out.”

### CPRA:

The California Privacy Rights Act (CPRA) defines dark patterns as: “[a] user interface designed or manipulated with the substantial effect of subverting or impairing user autonomy, decision-making, or choice, as further defined by regulation.”

- Consent means any freely given, specific, informed and unambiguous indication of the consumer's wishes... **“agreement obtained through use of dark patterns does not constitute consent.”**

# Moving away from “dark patterns”

## CONSIDERING NEW TERMINOLOGY

- Concerns about clarity and unintended implications of use of the term “dark”
- Proposed:
  - Deceptive or unfair design practices
  - Manipulative or deceptive design
- Issue: “dark patterns” currently written into law; conflict with legal meanings of “deceptive,” etc.

# Context: Where do we find deceptive designs?

## THREE PRIMARY CONTEXTS:

- **e-Commerce/online shopping:** loss of \$\$, price discrimination
- **Disclosure/consent:** loss of privacy, over-disclosure of personal info
- **Gaming/gambling:** attention/addictive engagement/time wasting

Typically found at *decision points* -- places where individuals *make a decision or execute an action* & are susceptible to manipulation.



# How do they work?

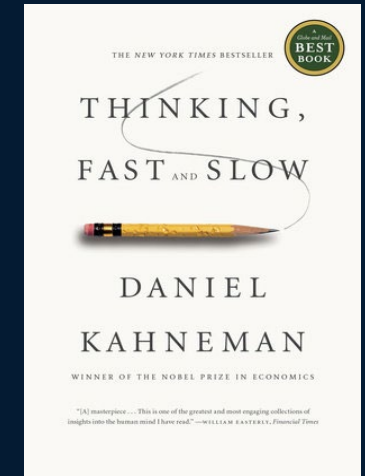
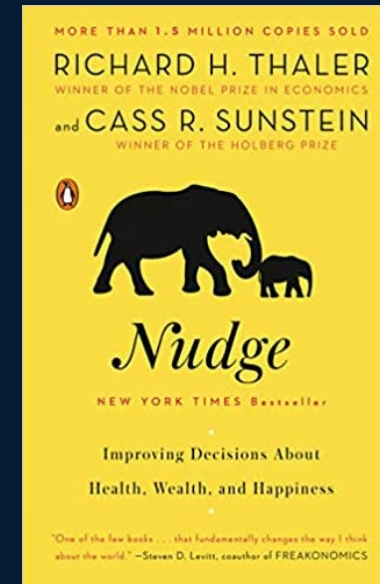
## HEURISTICS & COGNITIVE BIASES

**Heuristics** (mental shortcuts to help with decision-making):

- Availability heuristic
- Anchoring heuristic

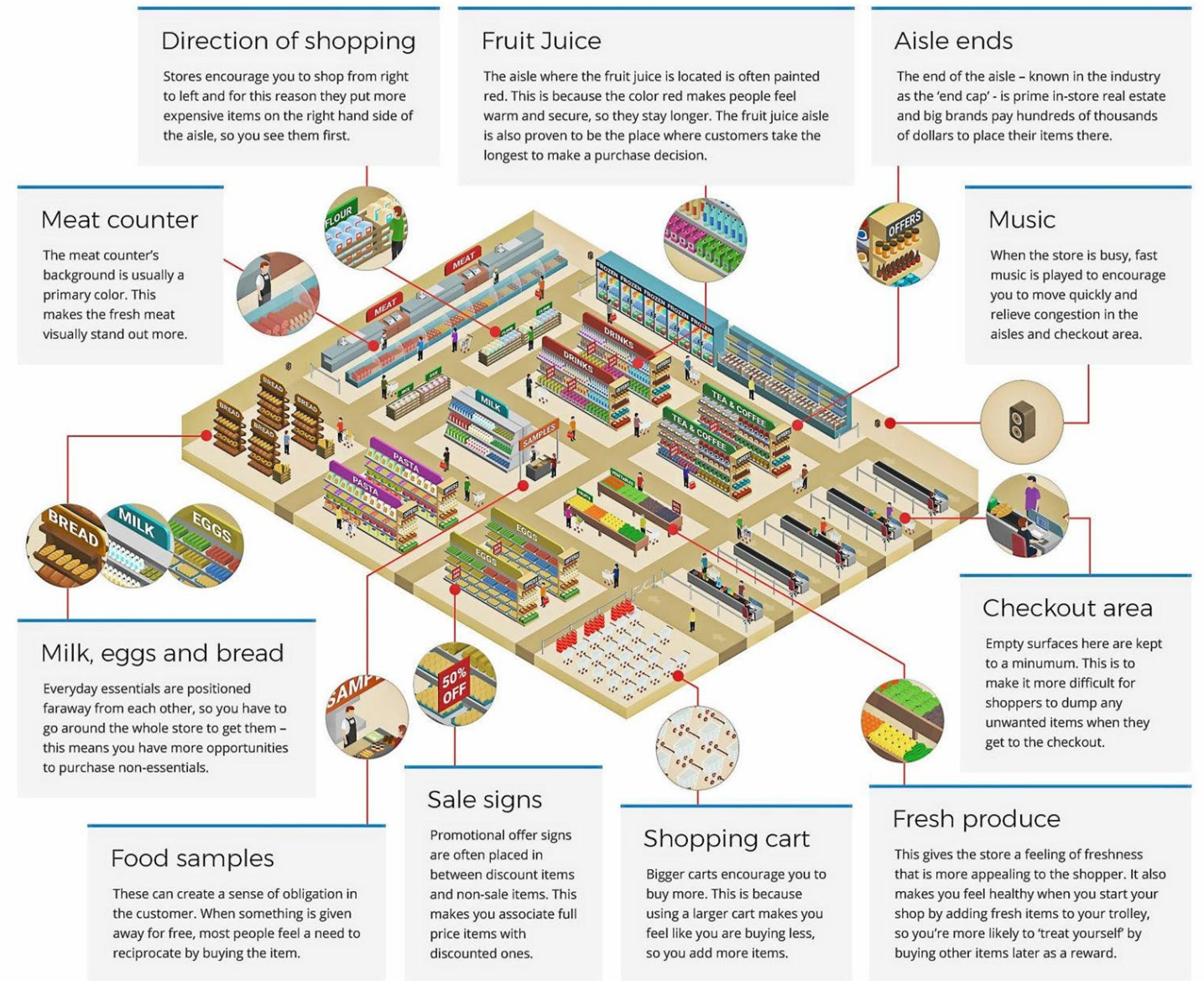
**Cognitive Biases** (systematic errors in thinking):

- Confirmation bias
- Hindsight bias



Captology and Persuasion

# Manipulative design in the physical world: grocery stores





# Countering real world persuasion

## “NEUTRAL, HEALTH PROMOTING SPACE”

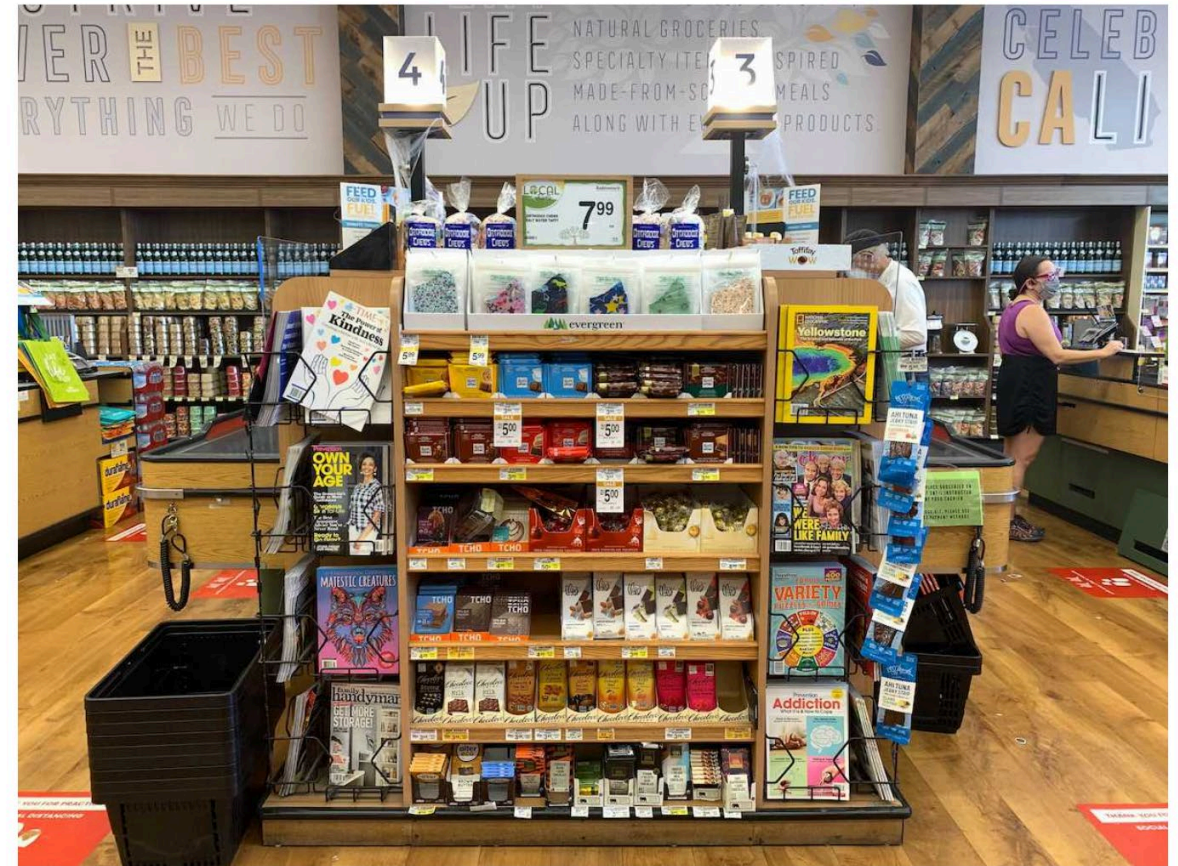
Berkeley passed an ordinance in 2020 requiring larger grocery stores to remove unhealthy foods from checkouts.

- “Facilitates better choices for consumers but does not limit what they buy.”
- Concerns with kids @ checkouts

Source: <https://www.berkeleyside.org/2020/09/23/berkeley-will-be-first-in-the-nation-to-ban-candy-soda-at-checkout-aisles>

## Berkeley will be first in the nation to ban candy, soda at checkout aisles

City Council passed an ordinance banning unhealthy food from checkstands at large retailers. In March 2021, stores like Whole Foods and Berkeley Bowl will have to replace chips and candy with healthier options.



Chocolate bars tempt shoppers checking out at Andronico's on Solano Avenue. Photo: Eden Teller

Berkeley's City Council has passed an ordinance that will remove unhealthy food from grocery store checkout aisles. The ordinance is the first of its kind in the U.S., supporters said.

# Types of Dark Patterns

SOURCE: DARK PATTERNS AT SCALE (MATHUR, ET AL.)

MODIFY THE DECISION SPACE			MANIPULATE INFORMATION FLOW	
ASYMMETRIC	COVERT	RESTRICTIVE	HIDES INFO	DECEPTIVE
Interface emphasizes the choices that benefit company over others	Interface steers users to make certain purchases or choices without their knowledge	Interface restricts the number of choices available to the user	Interface obscures or delays the presentation of key information	Interface uses misleading statements or omissions to induce false beliefs

# Persuasion vs. Deception, Coercion, & Manipulation

1. **Deception:** Planting of false beliefs (form of manipulation); FTC: “a representation, omission, or practice is deceptive if it is likely to mislead consumers acting reasonably under the circumstances”
2. **Coercion:** Coercion influences someone “by constraining their options, such that their only rational course of action is the one the coercer intends.”
3. **Manipulation:** Manipulation is hidden influence: “intentionally and covertly influencing [one’s] decision-making, by targeting and exploiting their decision-making vulnerabilities.”

Source: Susser, D. & Roessler, B. & Nissenbaum, H. (2019). *Technology, Autonomy, and Manipulation*. *Internet Policy Review*, 8(2).

# Dark Patterns Tip Line.org

**DARK PATTERNS** **TIP LINE**

**HARMS**

**SIGHTINGS**

**ABOUT**

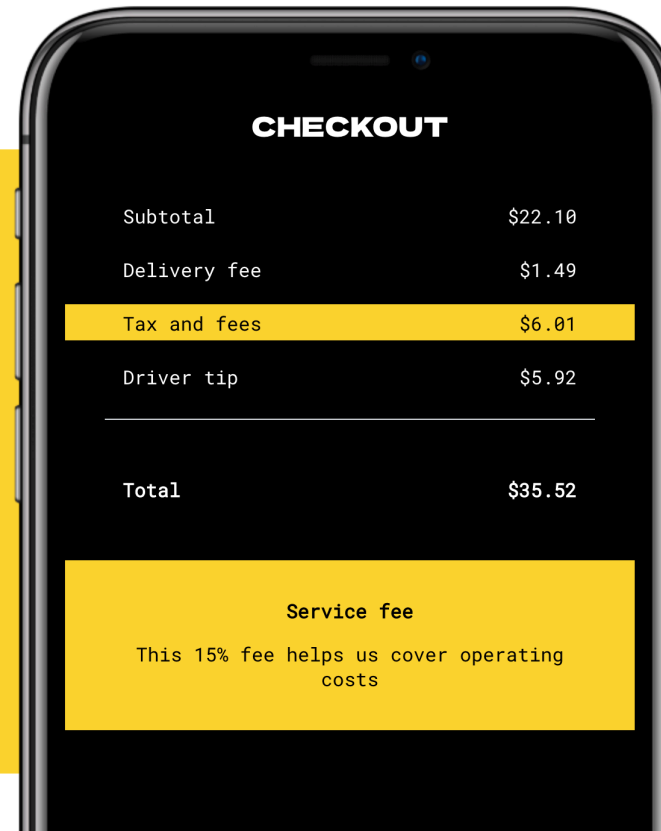
**REPORT**

## DARK PATTERNS TIP LINE

Every day, we're exploited for profit through **dark patterns**: design tactics used in websites and apps to persuade you into doing things you probably would not do otherwise.

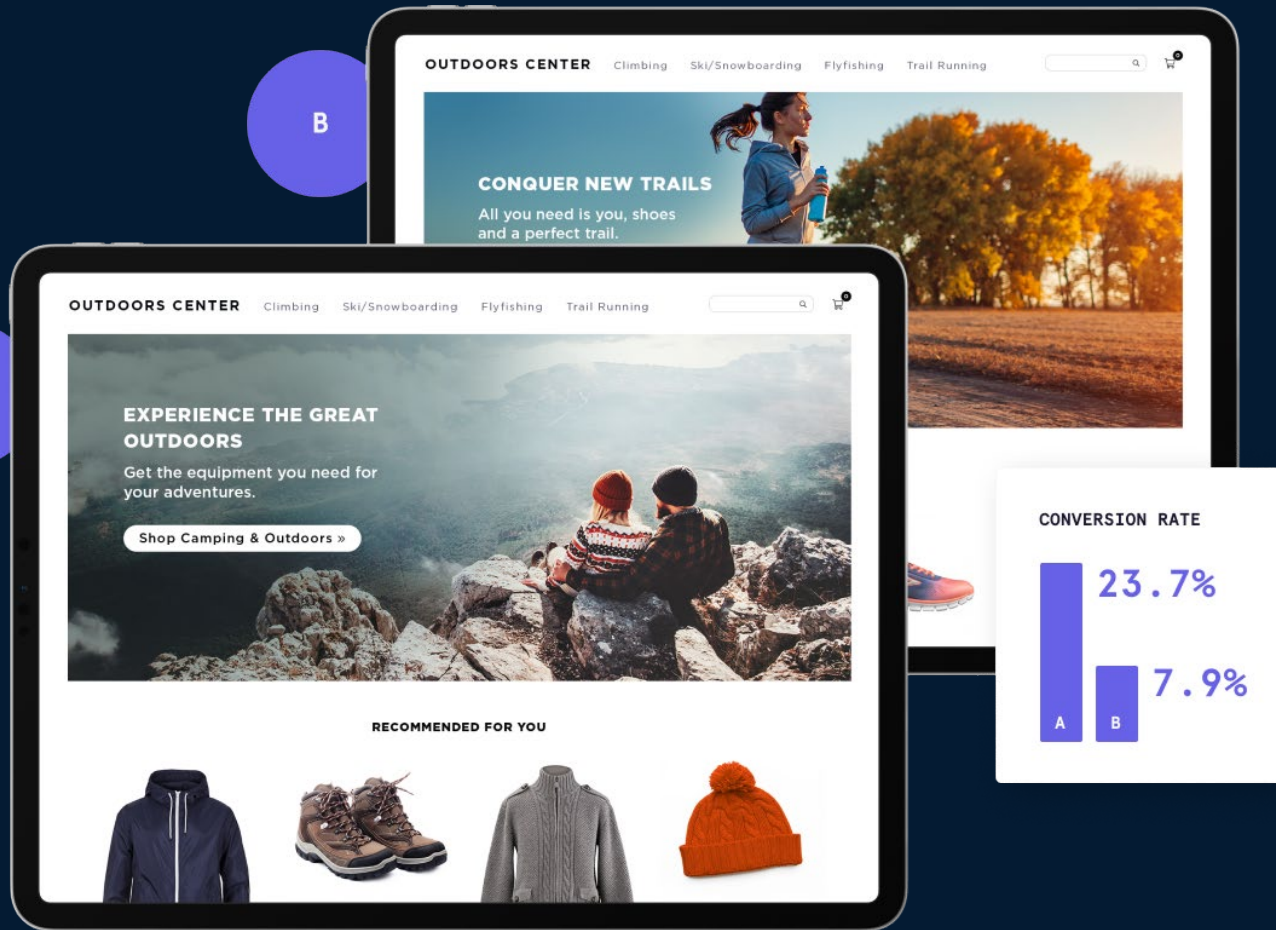
We need to take a stand against dark patterns—and you can help by reporting a dark pattern today. It will help us fight back against companies using manipulative dark patterns to take our private information, money, and time. You deserve respect, online and off.

**REPORT A PATTERN**





# Facilitating Their Rise: A/B Testing at Scale



“A/B testing is a methodology to compare two or more versions of an experience to see which one performs the best relative to some objective measure.”

Rochelle King, Elizabeth Churchill, and Caitlin Tan. *Designing With Data*. Sebastapol, CA: O'Reilly Media, Inc. 2017.

# Deception: False Urgency

## SELECT YOUR SUBSCRIPTION

☐ Single site  
~~\$79.99~~ \$ 76.99

Temporary offer,  
only 1 left!

☒ 6 sites  
~~\$129.99~~ \$ 92.00

Temporary offer,  
only 3 left!

☐ 30 sites  
\$ 169.99

A subscription license entitles you to 1 year of updates and support. Each installation of the plugin will require a license key.



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## Burgundy Room, 1 King Bed, Non-Smoking

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1 king bed

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Attached bathroom Flat-screen TV

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## I'll reserve

- Confirmation is immediate
- No registration required
- No booking or credit card fees!

8 other people looked for  
your dates in the last 10  
minutes



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**\$11,500.00** FREE SHIPPING

**afterpay** available for orders between \$1 - \$2,000

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The iconoclastic label blurs the boundary between fashion and sculpture with this frame clutch carefully shaped from single pieces of Italian travertine stone.



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Available tomorrow

Free Gift Wrap



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**Add to Bag**



# Content: Guiltshaming/Confirmshaming

**You're using an ad blocker. We wondered if you might not?**

We work hard to ensure our ads aren't a pain and they're how we're able to offer this splendid site for free. For Horace's sake, could you whitelist us?



**Turn Off Ad Blocker**

[I am a bad person](#)

Get even lower rates

Access Secret Prices and get additional savings on select properties right to your inbox.

**Unlock Secret Prices now**

By giving us your email address you agree to receive great deals and sale alerts via email. You can unsubscribe at any time.

By continuing, you agree to the [Terms & Conditions](#) and [Privacy Policy](#).

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We, and our partners, use technologies to process personal information, including IP addresses, pseudonymous identifiers associated with cookies, and in some cases mobile ad IDs. This information is processed to personalize content based on your interests, run and optimize marketing campaigns, measure the performance of ads and content, and derive insights about the audiences who engage with ads and content. This data is an integral part of how we operate our site, make revenue to support our staff, and generate relevant content for our audience. You can learn more about our data collection and use practices in our [Privacy Policy](#). If you wish to request that your personal information is not shared with third parties, please click on the below checkbox and confirm your selection. Please note that after your opt out request is processed, we may still collect your information in order to operate our site.



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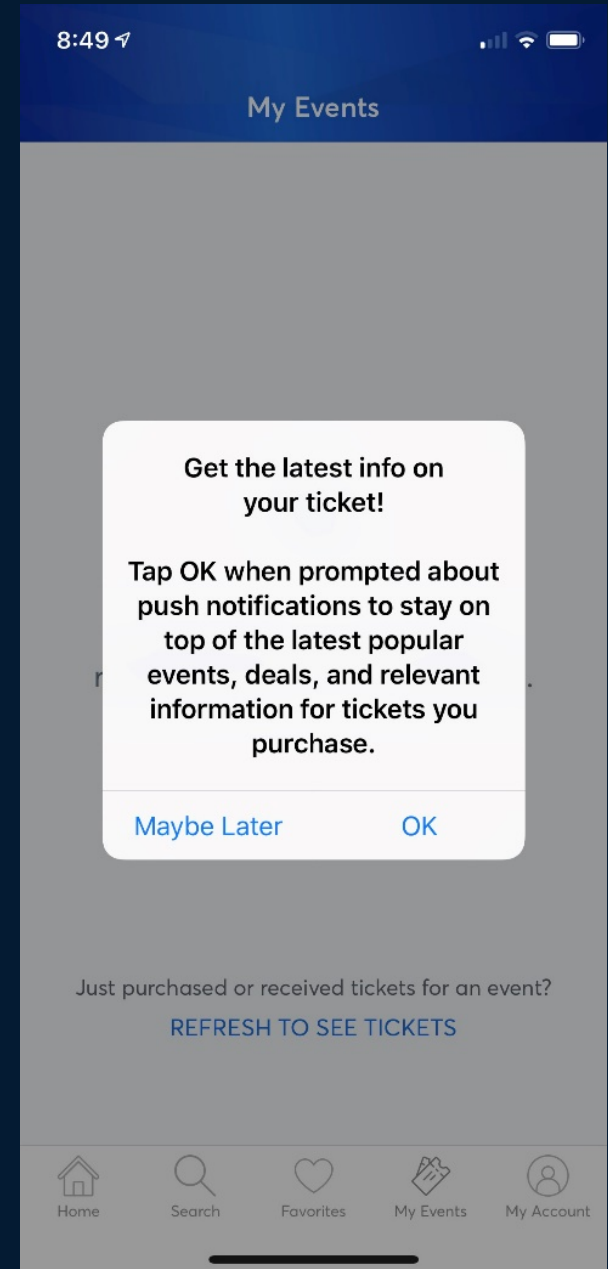
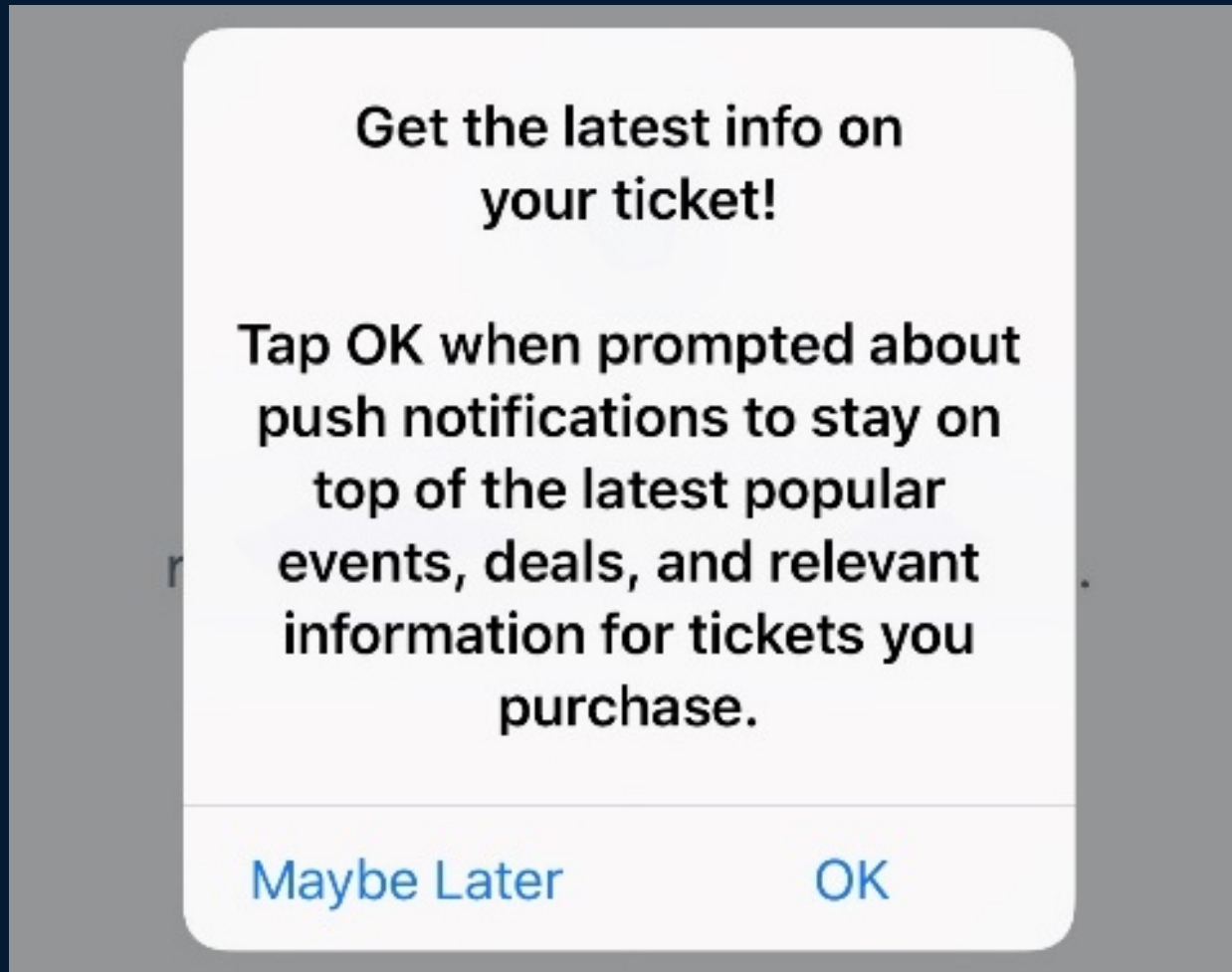
Allow “ ” to  
track your activity across  
other companies' apps and  
websites?

The helps save lives.  
Keep this app free and improve the ad  
experience by allowing tracking.  
Shared information is not personally  
identifiable.

[Ask App not to Track](#)

[Allow](#)

# Content: Nagging



# Content: Confusing Double Negatives

## My Health Record

---

Do you wish for your record NOT to be sent to  
My Health Record?

No



Save and Continue

# Obstruction

## Processing Preferences

We are processing the requested change to your cookie preferences.

This may take up to a few minutes to process.



Processing 29%

CANCEL

[Privacy Policy](#)

Powered by:  TrustArc

## We offer several ways to cancel your subscription.

Please keep in mind that you'll have limited access when you cancel.

### Chat with a Customer Care advocate.

Begin chat

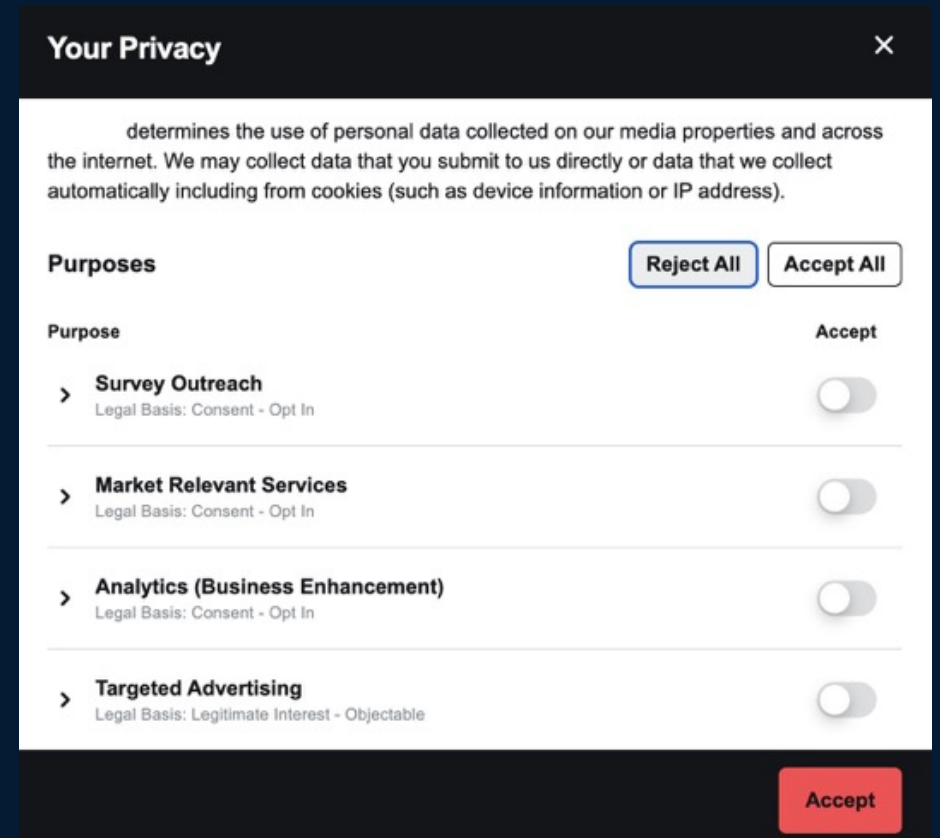
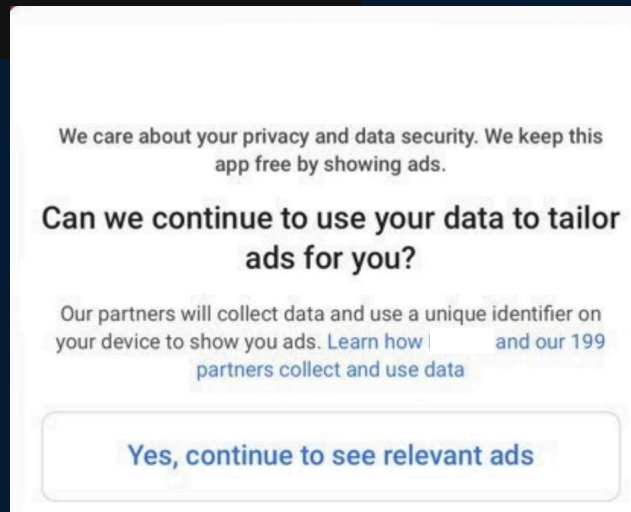
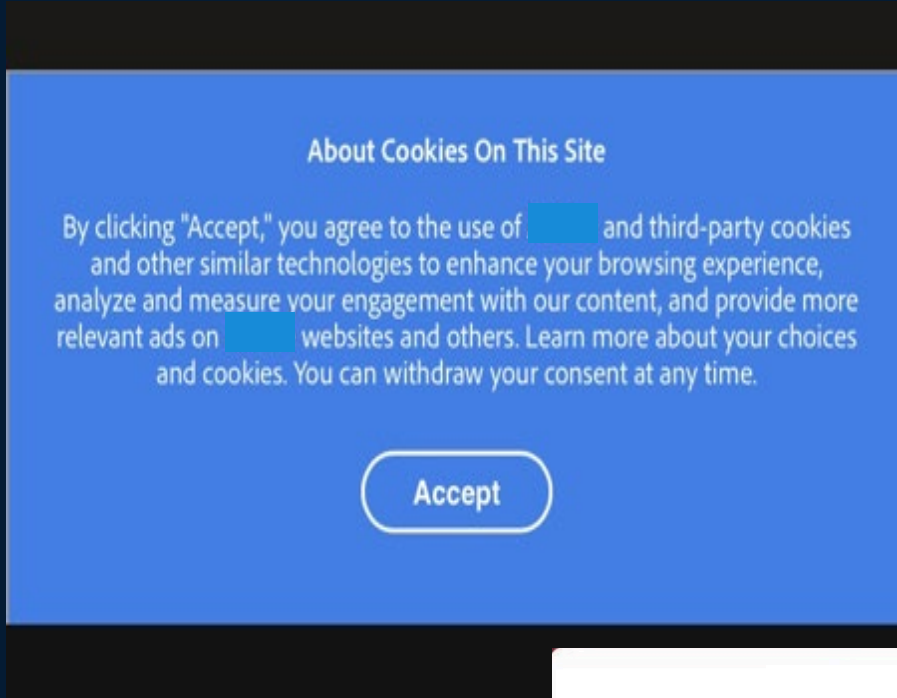
### Give us a call.

Call us at **858-877-6618** if you are in the U.S. Our hours are 7 a.m. to 10 p.m. E.T. Monday to Friday, and 7 a.m. to 3 p.m. E.T. Saturday to Sunday. Please see our [international contact information](#) if you are outside of the U.S.


### Use your account.

Continue

# Privacy: Coercive (& Confusing) Consent



# Privacy: CCPA Do Not Sell Requests



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Disagree☒Agree

## Do not sell my personal information:

On this website or app

ON

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# Open Policy Issues

- CPRA current scope is framed around consent –opportunity to rethink *de facto* consent standards
  - See REGULATING PRIVACY DARK PATTERNS IN PRACTICE—DRAWING INSPIRATION FROM CALIFORNIA PRIVACY RIGHTS ACT. Jennifer King & Adriana Stephan, 5 GEO. L. TECH. REV. 250 (2021)
- Identify areas outside consent where privacy and manipulative design intersect, e.g. use of personal data to influence decision-making
- Assessing and measuring impacts of manipulative design requires expertise
  - Agency must consider this as it hires staff
  - Need a public facing method for capturing consumer reports of harms (complaints database)
- Considering developing positive guidance/standards around decision-points



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