

# Manipulative Design Patterns in Cookie Notices on Media/News Sites

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# Motivation & Research Questions

## Motivation

- Concept of consent in regards to data privacy is murky
- Cookie notices are the main way users give consent on websites
- These notices vary in terms of design
- GDPR outlines criteria for cookie notices but it's still open-ended and hard to enforce

## Research Questions

- Which manipulative patterns and associated design strategies are present in these cookie consent notices?
- Are these cookie consent notices legally compliant with GDPR?
- What is the impact of these designs on user autonomy and choice?

# Methods

- Identifying websites
  - List of top 12 most visited US-based news/media websites
  - Narrowed down to 10 that had cookie notices
  - Used a VPN set to the UK (without a VPN, cookie notices did not appear)
- Data collection
  - Recorded steps in the consent workflow mentioned in Gray et al: initial framing, configuration, and acceptance. The revocation step was not analyzed.
  - A total of 43 screenshots were taken, with a range of 3-6 per website.
- Choosing a taxonomy
  - Modified taxonomy from Gray et al
  - Removed irrelevant patterns (shopping patterns, nagging, privacy zuckering)
  - Borrow concept from Roffarello et al (attention capture paper) in order to refer to “manipulative patterns” instead of “dark patterns” and “privacy-friendly patterns” instead of “bright patterns”
- Analysis
  - Each consent workflow was examined for all of the patterns in the taxonomy
  - All instances of manipulative patterns were recorded in a spreadsheet
  - Each workflow also assessed for legal compliance, per Nouwens et al

NY Times
CNN
MSN
NY Post
People
USA Today
CNBC
Yahoo News
Google News
Forbes

# Taxonomy

<b>Obstruction</b>	<b>Sneaking</b>	<b>Forced Action</b>	<b>Interface Interference</b> Hidden Information Pre-selection Aesthetic Manipulation Toying with Emotion False Hierarchy Trick Questions
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Dark Pattern Category	Design Strategy	Definition
Obstruction	-	Making a process more difficult than it needs to be, with the intent of dissuading certain action(s)
Sneaking	-	Attempting to hide, disguise, or delay the divulging of information that is relevant to the user
Forced Action	-	Requiring the user to perform a certain action to access (or continue to access) certain functionality
Interface Interference	-	Manipulation of the user interface that privileges certain actions over others
Interface Interference	Hidden Information	Options or actions relevant to the user but not made immediately or readily accessible
Interface Interference	Preselection	An option is preselected by default prior to user interaction
Interface Interference	Aesthetic Manipulation	Any manipulation of the user interface that deals more directly with form than function, including design choices that focus the user's attention on one thing to distract them from or convince them of something else
Interface Interference	Toying with Emotion	Any use of language, style, color, or other similar elements to evoke an emotion in order to persuade the user into a particular action
Interface Interference	False Hierarchy	Giving one or more options visual or interactive precedence over others, particularly where items should be in parallel rather than hierarchical
Interface Interference	Trick Questions	Pattern includes a question that appears to be one thing but is actually another, or uses confusing working, double negatives, or otherwise leading language to manipulate user interactions (ex: using checkboxes to opt out rather than opt in)

# Legal Compliance Framework

- Criteria borrowed from *Dark Patterns after the GDPR: Scraping Consent Pop-ups and Demonstrating their Influence* (Nouwens et al)
- Three criteria for legal compliance with GDPR:
  - Consent must be explicit
  - Accepting all is as easy as rejecting all
  - No pre-ticked boxes

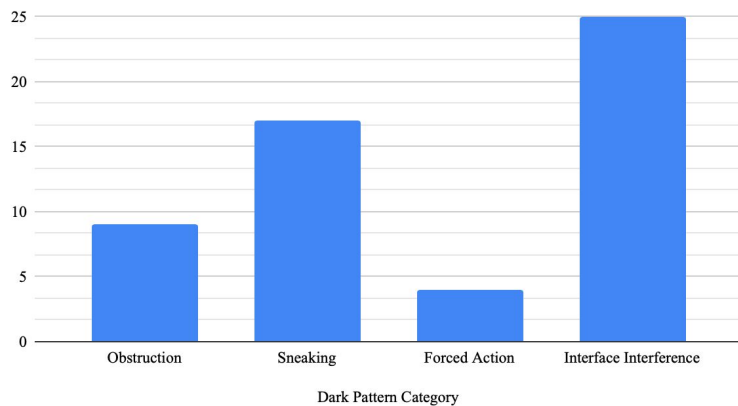
# Findings

# Scale of Manipulative Patterns

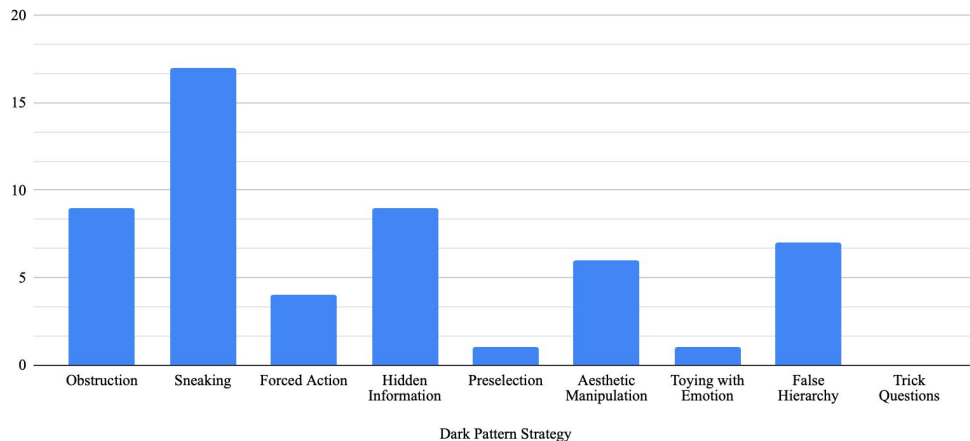
Total # of instances of dark patterns

55

Frequency of Dark Pattern by Category



Frequency of Dark Pattern by Strategy



# Manipulative Pattern Analysis

## Forced Action

### Obstruction

- 9 of the 10 websites had cookie consent workflows that utilized some form of obstruction
- The most obvious perpetrators are the tracking/consent walls and pop-up notices
- Labyrinth-like set-up of information on cookie settings pages

### Sneaking

- Every website had at least one instance of sneaking
- Two primary manifestations:
  - Drop-down toggles or sidebar panels
  - Lack of clear and transparent default settings

- Came into play for the tracking walls and mandatory pop-ups (4 out of 10 websites)
- In the case of Google's consent wall and Yahoo News' and USA Today's pop-ups, the user has the option to accept or reject but is forced to make a choice before accessing the website

## Interface Interference

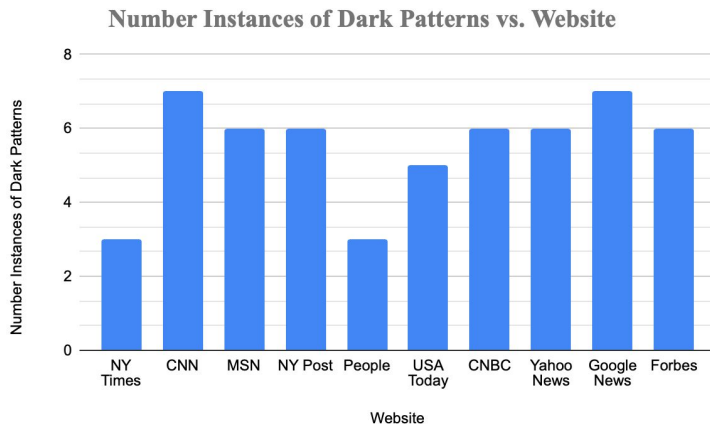
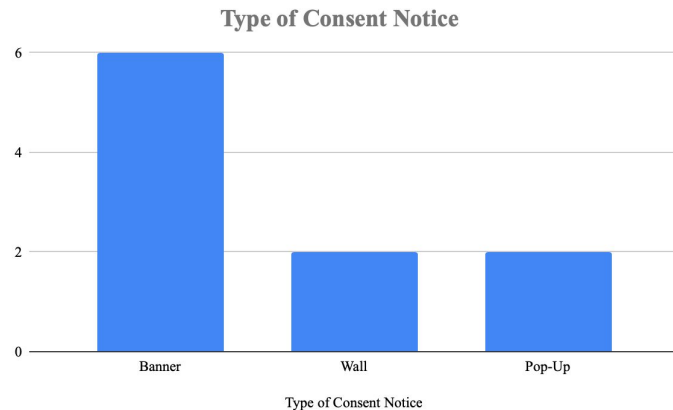
- Hidden information: hiding information beneath toggles, sidebars, and in hyperlinks
- Aesthetic manipulation: "Accept All" is an actual button but "Manage Cookies+" choice is only hyperlinked text
- False hierarchy: "Accept" button above the "Reject" button, "Accept" button on the right side of the page while "manage cookies" (or equivalent) option off to the left
- Toying with emotion: "PLEASE NOTE: Consent to store and/or access information on a device is required to customize and improve your experience."
- Trick questions: none



# Website-Specific Findings

Two worst consent flows: scale + severity

- CNN
  - Banner → ambiguous consent
  - 16 distinct subsections with dropdowns
  - Banner and cookie settings page use both aesthetic manipulation and false hierarchy to favor the choice to accept cookies
  - “PLEASE NOTE” message to toy with the emotions of the user
  - No bright patterns
- NYTimes
  - Tracking wall that forces users to consent



# Privacy-Friendly (“Bright”) Patterns

- 15 instances of privacy-friendly patterns → 11 unique patterns identified
- A few examples:
  - "Reject All" button on the first cookie notice
  - Toggle options on the cookie settings page display the text "Consent" when turned on and "No Consent" when turned off
  - "Reject All" and "Accept All" buttons on the cookie notice are side by side rather than one on top of the other
  - There is no "Accept All" button on the cookie settings page
  - "Legal basis" text underneath each cookie category that explains how consent must be given for that specific type of cookie

**NEW YORK POST**

## About Your Privacy

**Your Privacy**

- Strictly Necessary Cookies
- Functional Cookies
- Analytics Cookies
- Targeting Cookies
- Store and/or access information on a device

**Purposes**

- > **Advertising**  
Legal Basis: Consent - Opt In
- > **Analytics**  
Legal Basis: Consent - Opt In
- > **Functional**  
Legal Basis: Consent - Opt In
- > **Required**  
Legal Basis: Legitimate Interest - Non-Objectable

**Personalised advertising and content, advertising and content measurement, audience research and services development**  
39 partners can use this purpose

**No Consent**

**Use limited data to select advertising**  
33 partners can use this purpose

**Consent**

Advertising presented to you on this service can be based on limited data, such as the website or app you are using, your non-precise location, your device type or which content you are (or have been) interacting with (for example, to limit the number of times an ad is presented to you).

[View Illustrations](#)

**Create profiles for personalised advertising**  
27 partners can use this purpose

**No Consent**

Information about your activity on this service (such as forms you submit, content you look at) can be stored and combined with other

**Confirm My Choices** **Reject All** **Allow All**

**Submit** **Exit**

# Legal Analysis

Website	Explicit Consent	Accept Reject Equal	No Pre-Ticked Boxes	Overall
NY Times	Yes	No	No	No
CNN	No	No	Yes	No
MSN	No	Yes	Yes	Yes
NY Post	No	No	Yes	No
People	No	Yes	Yes	Yes
USA Today	Yes	Yes	Yes	Yes
CNBC	No	Yes	Yes	Yes
Yahoo News	Yes	Yes	Yes	Yes
Google News	Yes	Yes	No	Yes
Forbes	No	No	Yes	No

Table 3: Moderate Compliance threshold: compliant if meets at least 2 of 3 criteria

Website	Explicit Consent	Accept Reject Equal	No Pre-Ticked Boxes	Overall
NY Times	Yes	No	No	No
CNN	No	No	Yes	No
MSN	No	Yes	Yes	No
NY Post	No	No	Yes	No
People	No	Yes	Yes	No
USA Today	Yes	Yes	Yes	Yes
CNBC	No	Yes	Yes	No
Yahoo News	Yes	Yes	Yes	Yes
Google News	Yes	Yes	No	No
Forbes	No	No	Yes	No

Table 4: Severe Compliance threshold: compliant if meets all 3 criteria

# Implications/Future Work

- Majority of these manipulative patterns hamper user autonomy in regards to data privacy
- But there are still many trade-offs when it comes to these patterns (some are subjective)
- “Bright” or pro-privacy patterns are helpful but also may influence users
- Defaults are important: low hanging fruit could be to set default to reject cookies
- Cannot focus on legal compliance alone; companies & designers must make good faith attempts to design with user autonomy & transparency in mind
- Future work should:
  - Identify which design patterns are most detrimental to user autonomy (backed by user feedback)
  - Aim to assess legal compliance of cookie consent workflows at scale
  - Combine bright patterns in order to create “ideal” cookie consent flow

Thank you!

