Human Computer Interaction (HCI)

Week 10: Dark Patterns & Critical Perspectives on HCI

Dr Tara Capel and Dr Uta Hinrichs



THE UNIVERSITY of EDINBURGH

CW2 process

- Design suggestions (CW1)
- Ideation
- Generate 5 new design ideas that respond to your CW1 findings and design suggestions (and other evidence)
- Sketching
  - Sketch two of the most promising or interesting ideas
- Prototyping
  - Select one of the two sketched ideas to turn into a prototype
- Pictorial
  - Present and discuss your design process and outcomes

Week 10 Outline

- HCI principles
  - Re-cap: Human factors, Nielsen's Heuristics, UX Honeycomb
  - Gestalt principles
  - Design patterns
- Dark patterns
- Ethical design
- Feminist HCI

re-cap: HCI principles

Human factors

The factors that impact the way in which a person would interact with a piece of technology

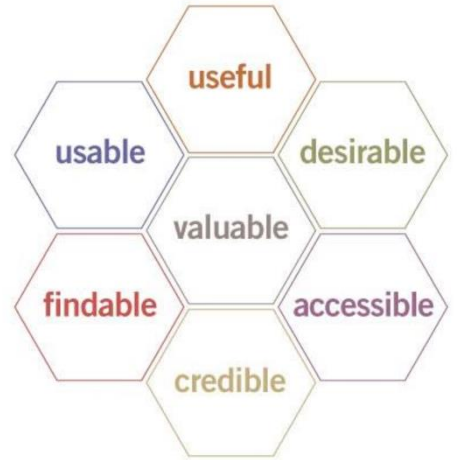
- Anthropometric factors: physical, anatomical and physiological aspects
- Behavioural factors: what can users see, perceive and act on?
- Cognitive factors: what cognitive processes are involved when someone uses a system?
- Social factors: what is the social context in which a system is used?

Nielsen’s heuristics

1. Visibility of System Status
2. Match Between the System and the Real World
3. User Control and Freedom
4. Consistency and Standards
5. Error Prevention
6. Recognition Rather than Recall
7. Flexibility and Efficiency of Use
8. Aesthetic and Minimalist Design
9. Help Users Recognize, Diagnose, and Recover from Errors
10. Help and Documentation

User experience honeycomb

Peter Morville



- **Useful:** the technology meets users' needs and serves a meaningful purpose
- **Usable:** the technology is easy to learn, understand and use effectively
- **Desirable:** the technology creates positive emotional experiences through its design, aesthetics and interactions
- **Findable:** users can easily locate the information, features or functionality they need
- **Accessible:** the technology can be used by people with diverse abilities & needs
- **Credible:** users perceive the technology and the information it provides as trustworthy and reliable
- **Valuable:** the technology delivers meaningful benefits to both users and the organisations providing it

Gestalt principles

Gestalt principles

- The Gestalt principles are a group of laws from Gestalt psychology that describe how our brains organize visual information into meaningful, unified wholes
- Following GESTALT principles can create designs that look and feel
  - More intuitive
  - Visually pleasing and organized
  - Guide users focus
  - Easy to navigate

Gestalt principles

- Similarity
- Continuity
- Proximity
- Figure-Ground
- Common Fate
- Closure
- Symmetry & Order
- Prägnanz
- Common Region

https://www.gestaltprinciples.com/

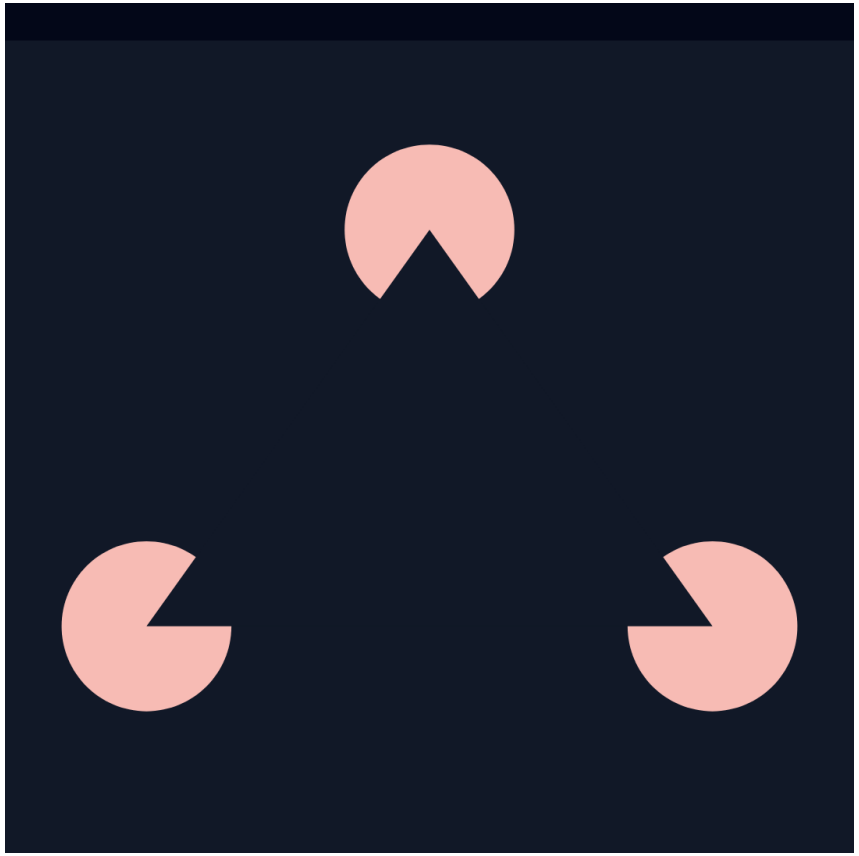
Gestalt principles

- **Similarity**
- Continuity
- **Proximity**
- Figure-Ground
- Common Fate
- **Closure**
- Symmetry & Order
- Prägnanz
- Common Region

https://www.gestaltprinciples.com/

Gestalt principles: closure

- We naturally complete incomplete shapes based on familiar patterns
- Typically used for logo design or icons



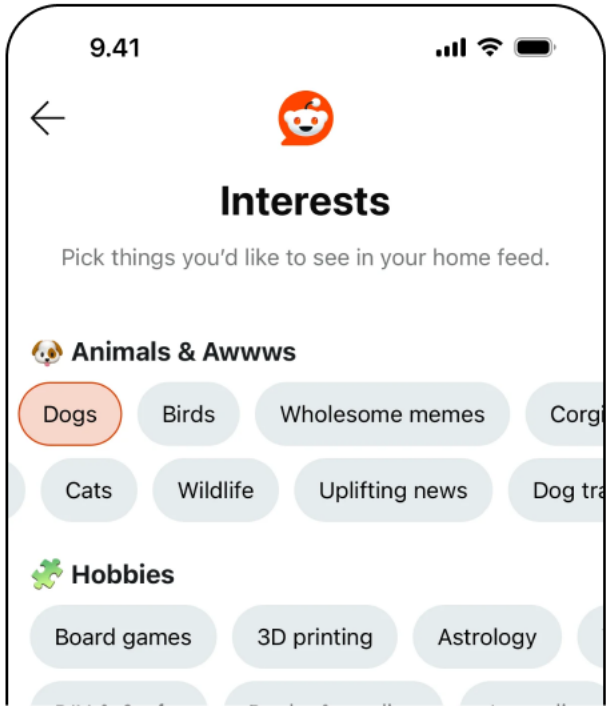
https://www.gestaltprinciples.com/principles/closure

Gestalt principles: closure

- We naturally complete incomplete shapes based on familiar patterns
- Example use cases
  - Logo and icon design
  - Encourage exploration of partially hidden content







https://www.gestaltprinciples.com/principles/closure

Gestalt principle: similarity

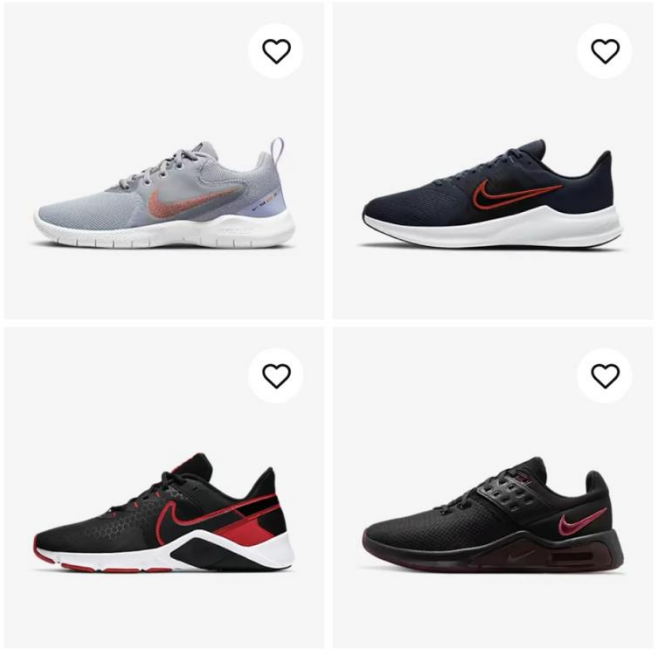
- Elements that look alike are perceived as related, helping to quickly identify patterns and groupings
- Colour, shape, size, orientation, and texture can establish similarity
- Helps organize information
- Facilitate navigation
- Promote user engagement

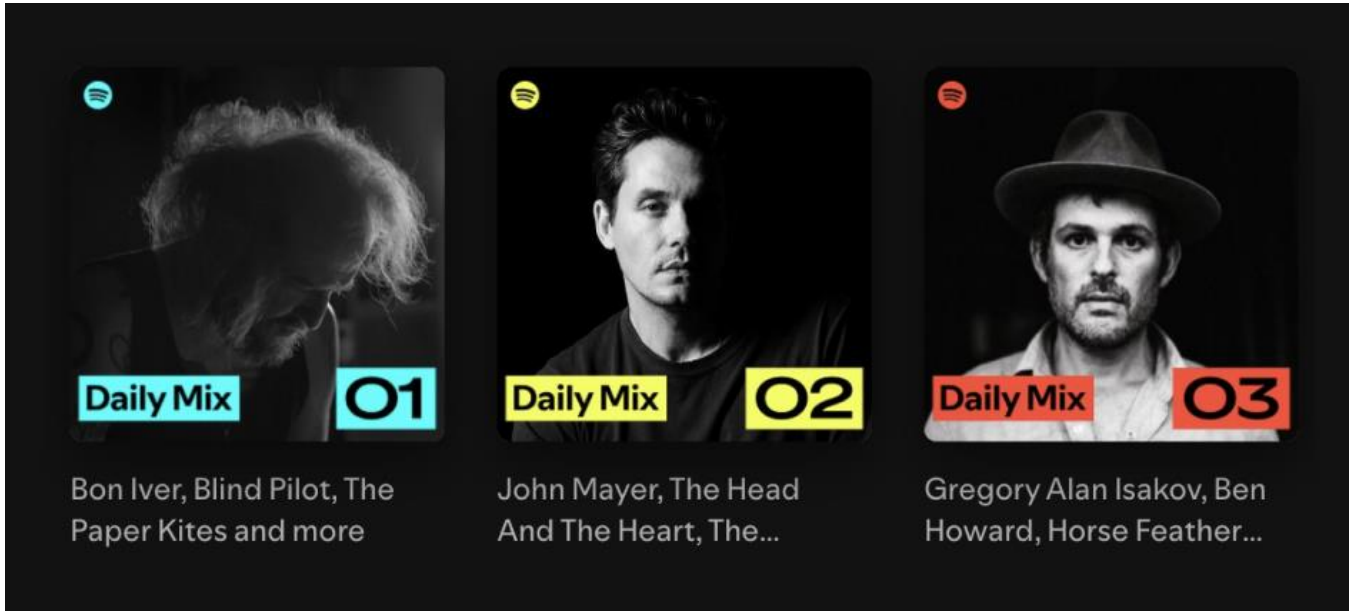


https://www.gestaltprinciples.com/principles/similarity
https://ixdf.org/literature/topics/law-of-similarity

Gestalt principle: similarity

- Consistent visual treatment: photographic angle, typography, layout

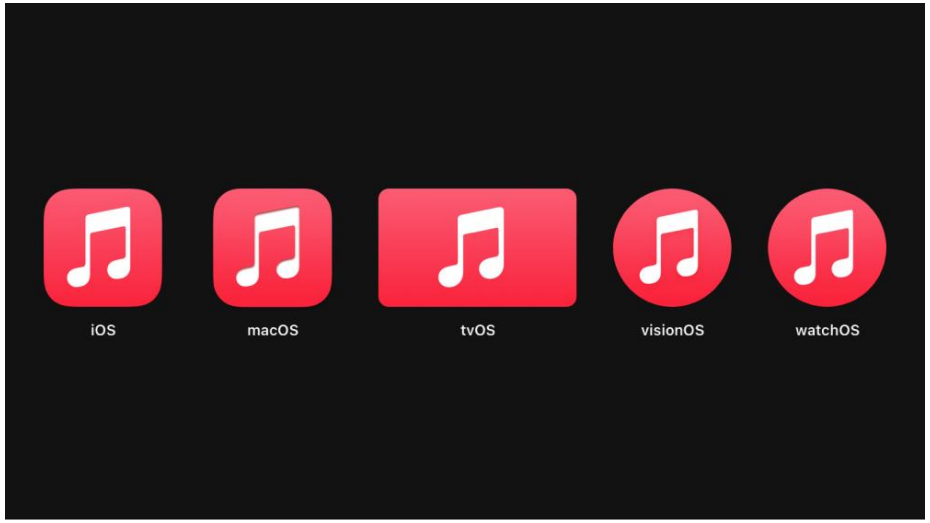


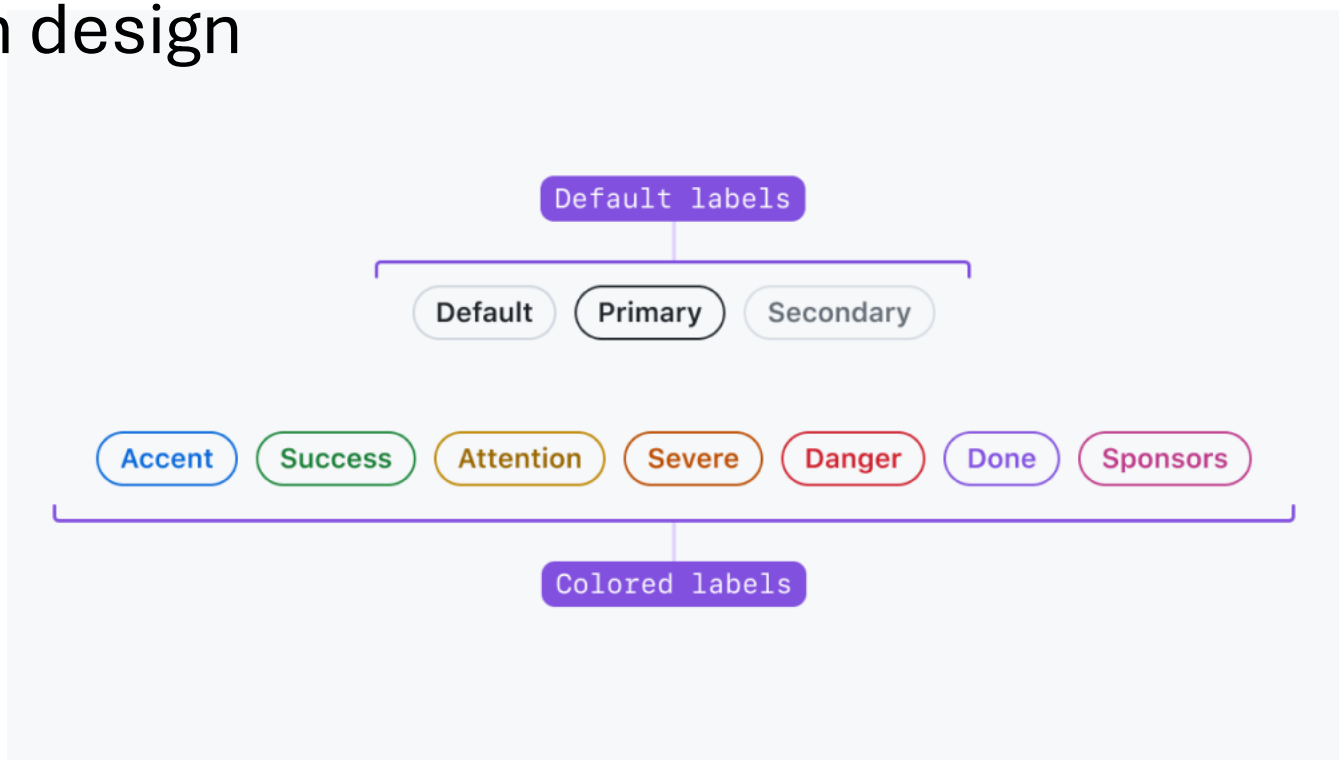


https://www.gestaltprinciples.com/principles/similarity
https://ixdf.org/literature/topics/law-of-similarity

Gestalt principle: similarity

- Consistency in button or icon design





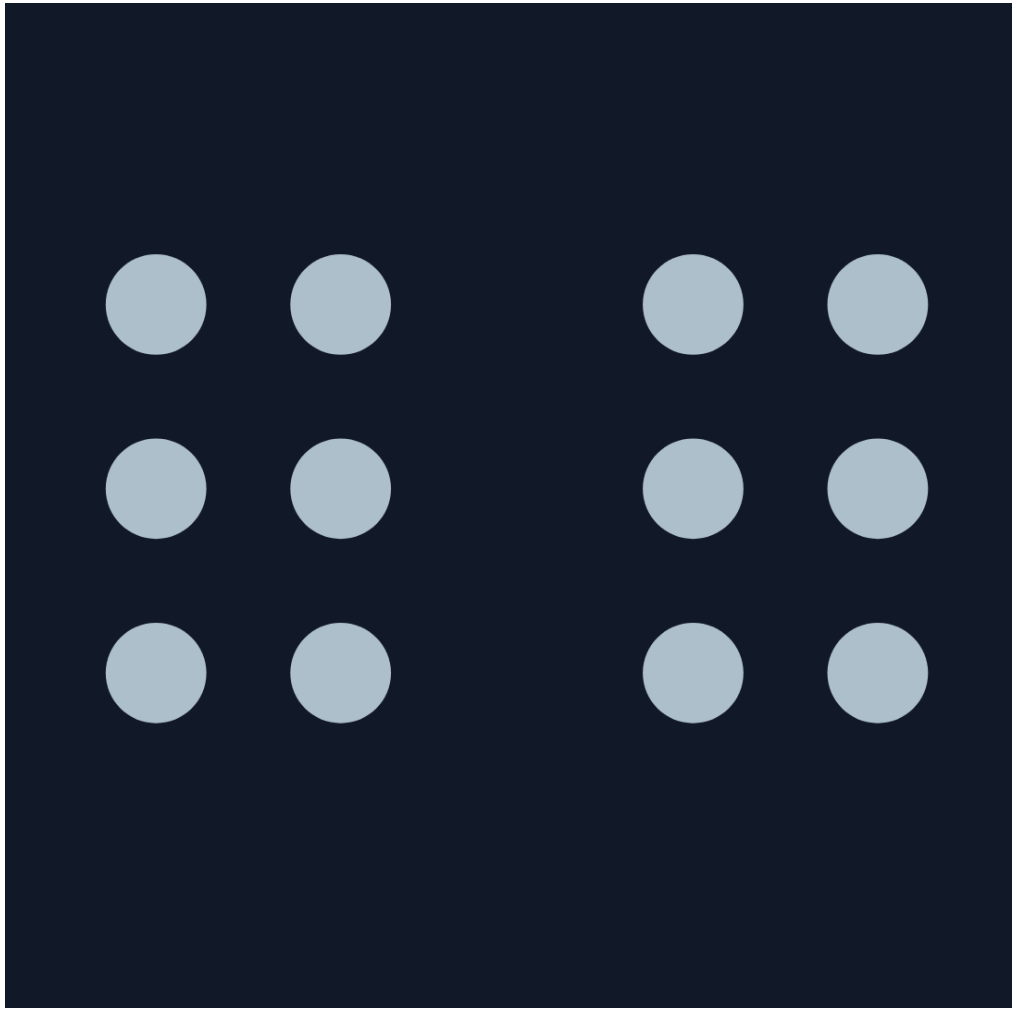
https://www.gestaltprinciples.com/principles/similarity
https://ixdf.org/literature/topics/law-of-similarity

Gestalt principle: proximity

- Objects placed close together are perceived as related, making grouping and hierarchy clear

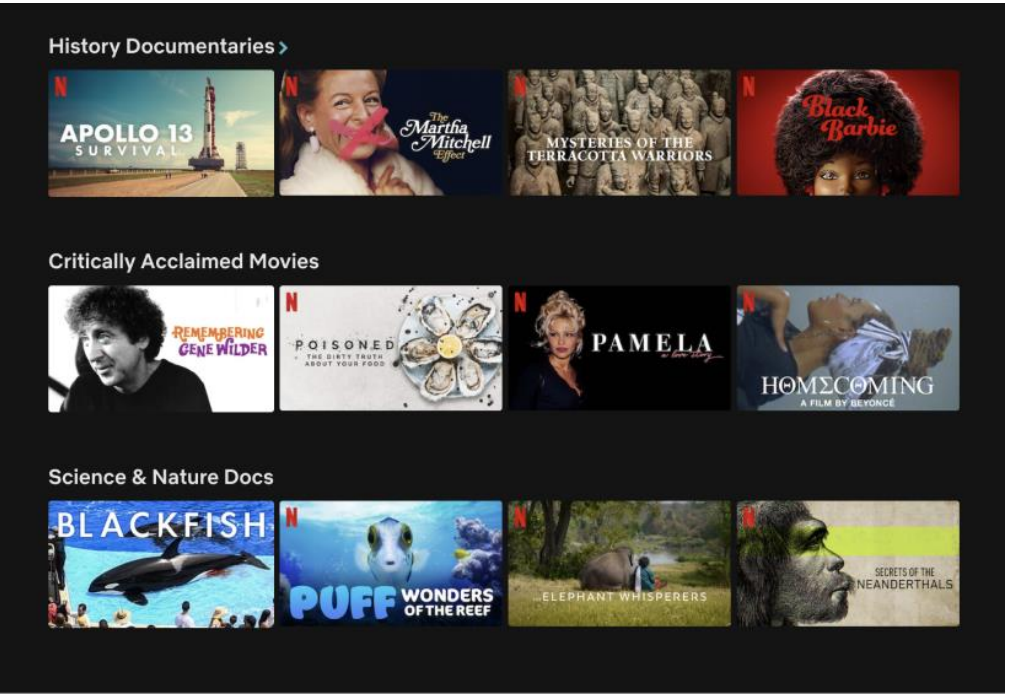
- Distance between elements can signal the strength of their connection

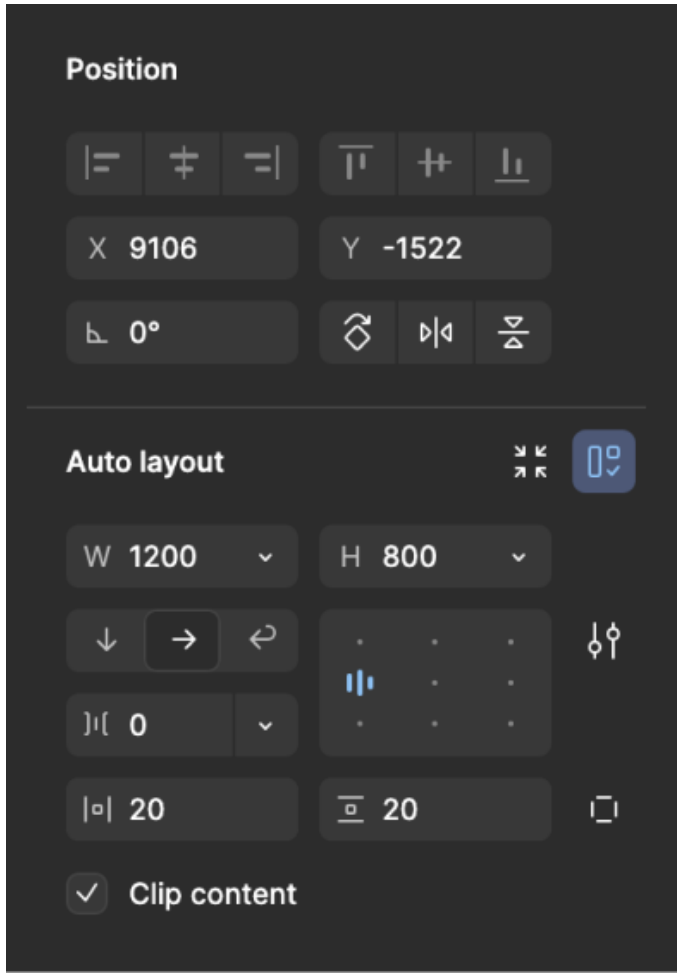
  → Closer items have a perceived relationship

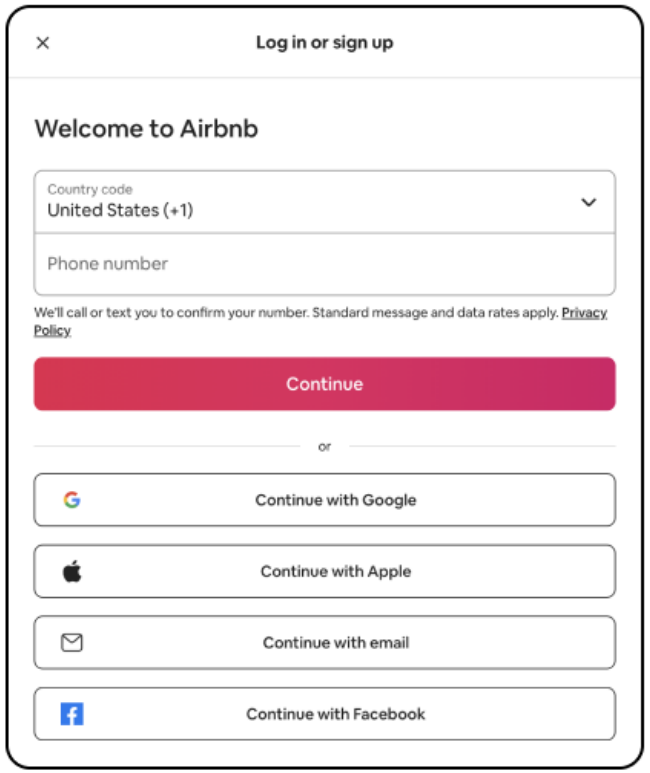


https://www.gestaltprinciples.com/principles/proximity

Gestalt principle: proximity







https://www.gestaltprinciples.com/principles/proximity

design patterns

design patterns

- Reusable/recurring components which designers use to solve common problems in user interface design
- Using established design patterns improves usability and consistency across products.
  - Reduce cognitive load on users through recognisable and predictable structures and actions
  - Re-use better than re-Invent
- Like a blueprint in architecture - use patterns as “blueprints” for interface structure as well as elements

User Interface Design Patterns

Getting input

Forms
- Drag and drop
- Structured Format
- Keyboard Shortcuts
- Captcha
- Rule Builder
- Inplace Editor
- Preview
- Autosave
- Password Strength Meter
- Fill in the Blanks
- WYSIWYG
- Input Feedback
- Calendar Picker
- Morphing Controls
- Expandable Input
- Settings
- Forgiving Format
- Undo
- Input Prompt
- Good Defaults

Explaining the process
- Wizard
- Inline Help Box
- Steps Left
- Completeness meter

Community driven

Onboarding

Getting in
- Account Registration
- Social Login
- Magic Login Link
- Deferred Verification
- Lazy Registration
- Guest Access
- Onboarding Carousel
- Welcome Screen

Setting up
- Personalization Form
- Smart Prefill
- Connected Accounts
- Data Import
- Role-based Invite
- Permission Priming

Finding your way
- Playthrough
- Guided Tour
- Walkthrough
- Coachmarks
- Hotspot
- Inline Hints
- Onboarding Checklist
- Feature Spotlight
- Resource Center

Reaching first value

Navigation

Tabs
- Navigation Tabs
- Module Tabs

Jumping in hierarchy
- Breadcrumbs
- Fat Footer
- Modal
- Notifications
- Shortcut Dropdown
- Home Link

Menus
- Vertical Dropdown Menu
- Accordion Menu
- Horizontal Dropdown Menu

Content
- Adaptable View
- Article List
- Tagging
- Pagination
- Categorization
- Cards
- Carousel
- Progressive Disclosure
- Continuous Scrolling
- Tag Cloud
- Event Calendar
- Archive

Dealing with data

Tables
- Table Filter
- Alternating Row Colors
- Sort By Column

Formatting data
- Frequently Asked Questions (FAQ)
- Dashboard
- Copy Box

Images
- Gallery
- Slideshow
- Image Zoom

Search
- Autocomplete
- Search Filters

Social

Reputation
- Testimonials
- Leaderboard
- Collectible Achievements

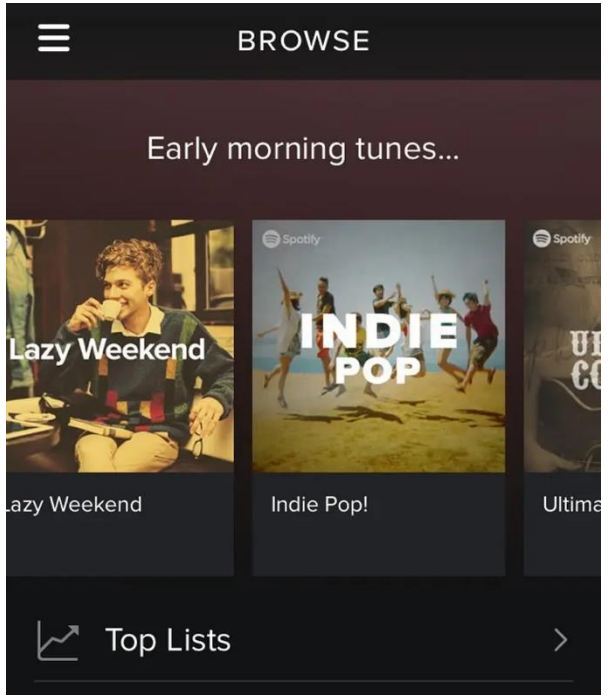
Social interactions
- Activity Stream
- Auto-sharing Mini
- Friend list Mini

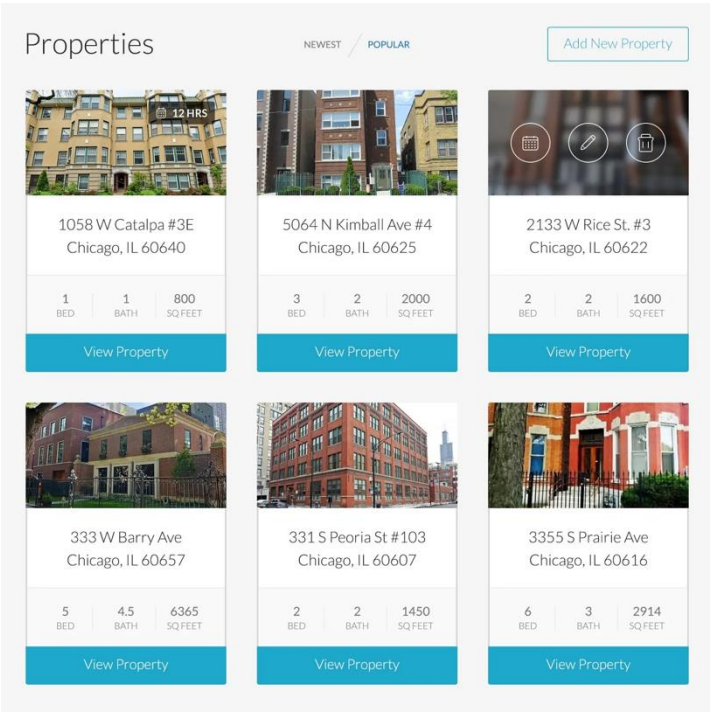
https://ui-patterns.com/patterns

design patterns: cards

- Cards are containers for content
- Allow users to digest information at a glance through clear hierarchy
- Versatile
  - Images
  - Text
  - Actions

→ Gestalt principles
  - Similarity
  - Proximity
  - …



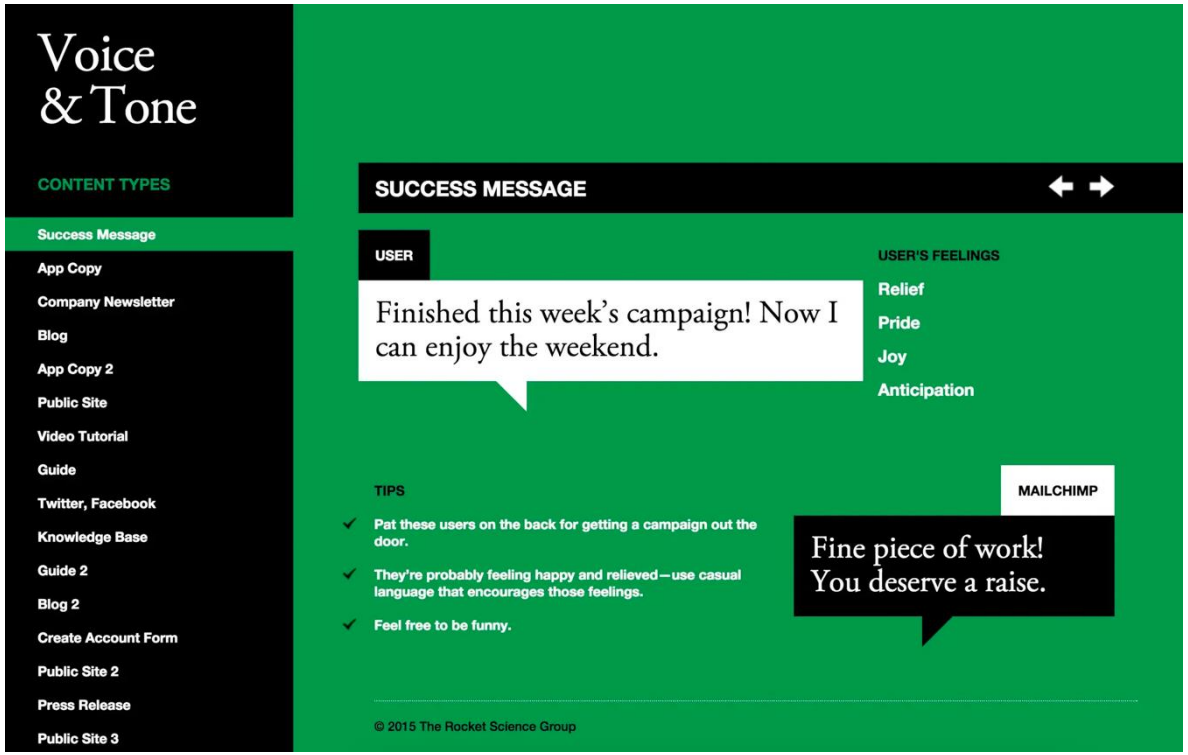


https://ui-patterns.com/patterns/cards

design patterns: navigation tabs

- Helps users navigate information structured in a flat hierarchy
- Can be horizontal or vertical
- Often include dropdowns or icons
- Easy access to different sections of a webpage or application

→ Gestalt principles
  - Similarity
  - Proximity
  - …



https://ui-patterns.com/patterns/NavigationTabs

dark patterns

What are dark patterns?

Normally we think of bad design as consisting of laziness, mistakes, or school-boy errors. We refer to these sorts of design patterns as ***Antipatterns***.

However, there's another kind of bad design pattern, one that's been crafted with great attention to detail, and a solid understanding of human psychology, to trick users into do things they wouldn't otherwise have done.

This is the dark side of design, and since these kind of design patterns don't have a name, I'm proposing we start calling them ***Dark Patterns***.

Harry Brignull, 2010

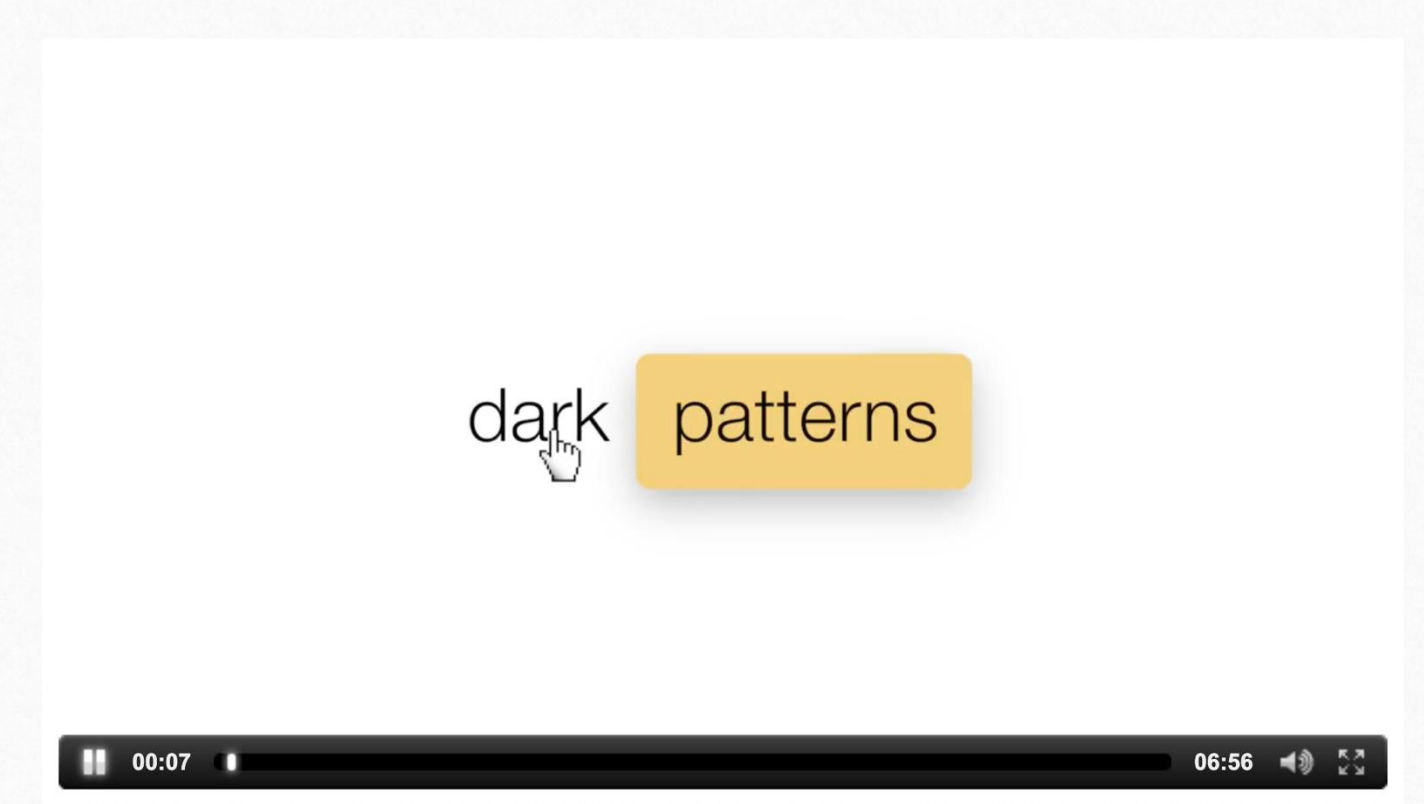
Dark Patterns: dirty tricks designers use to make people do stuff
https://web.archive.org/web/20250620081436/https://90percentofeverything.com/2010/07/08/dark-patterns-dirty-tricks-designers-use-to-make-people-do-stuff/

What are dark patterns?

- Also known as “deceptive patterns” or “deceptive design patterns”
- Deliberately deceptive design practices aimed at benefitting the platform at the user’s expense
- Skillful application or violation of HCI/design principles to make users do things they don’t necessarily need or want to do, e.g.,
  - Buying or downloading things, signing up for something

What are dark patterns

- Introduction video by The Nerdwriter



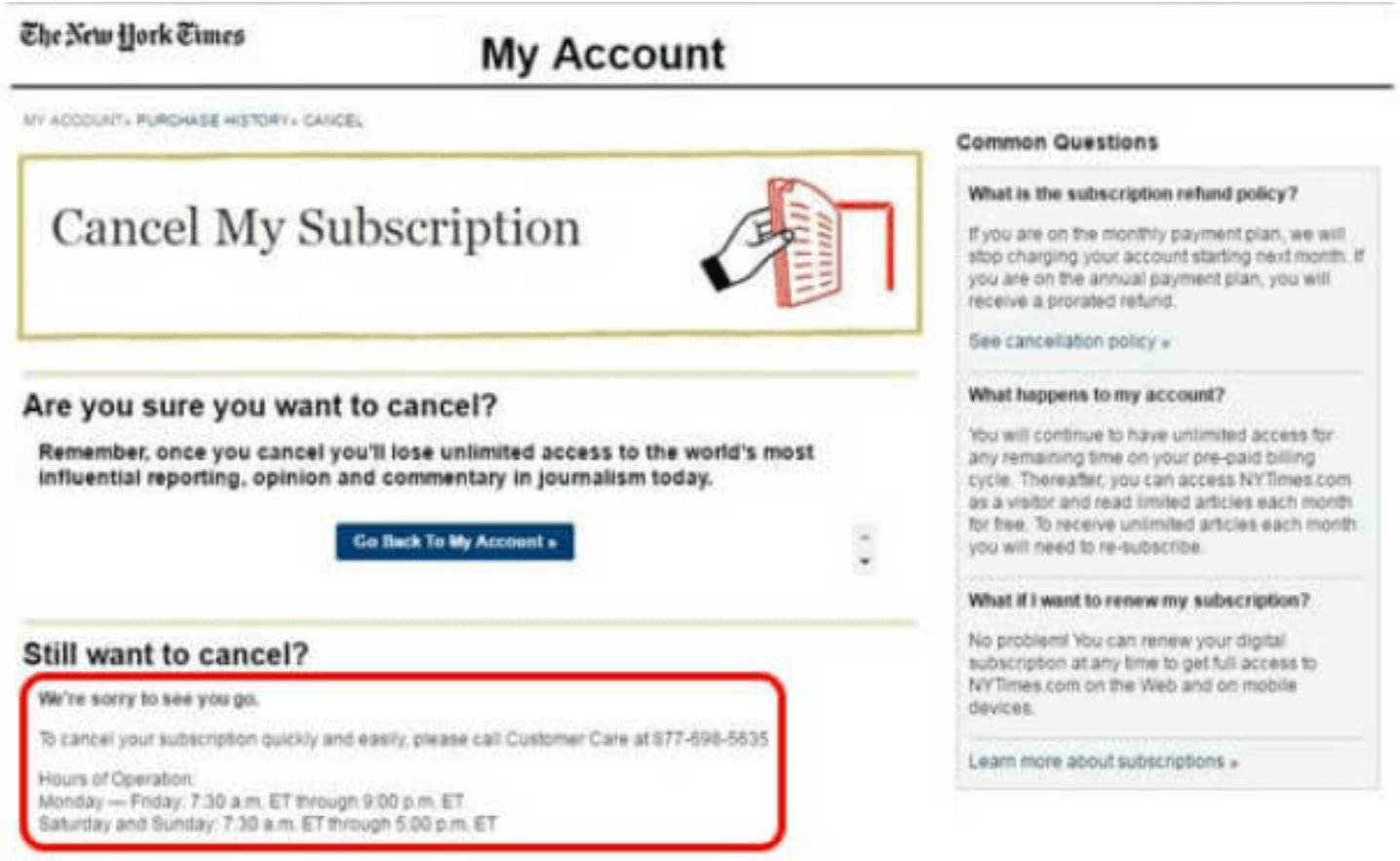
https://web.archive.org/web/20250615211231/https://90percentofeverything.com/

types of dark patterns

types of dark patterns

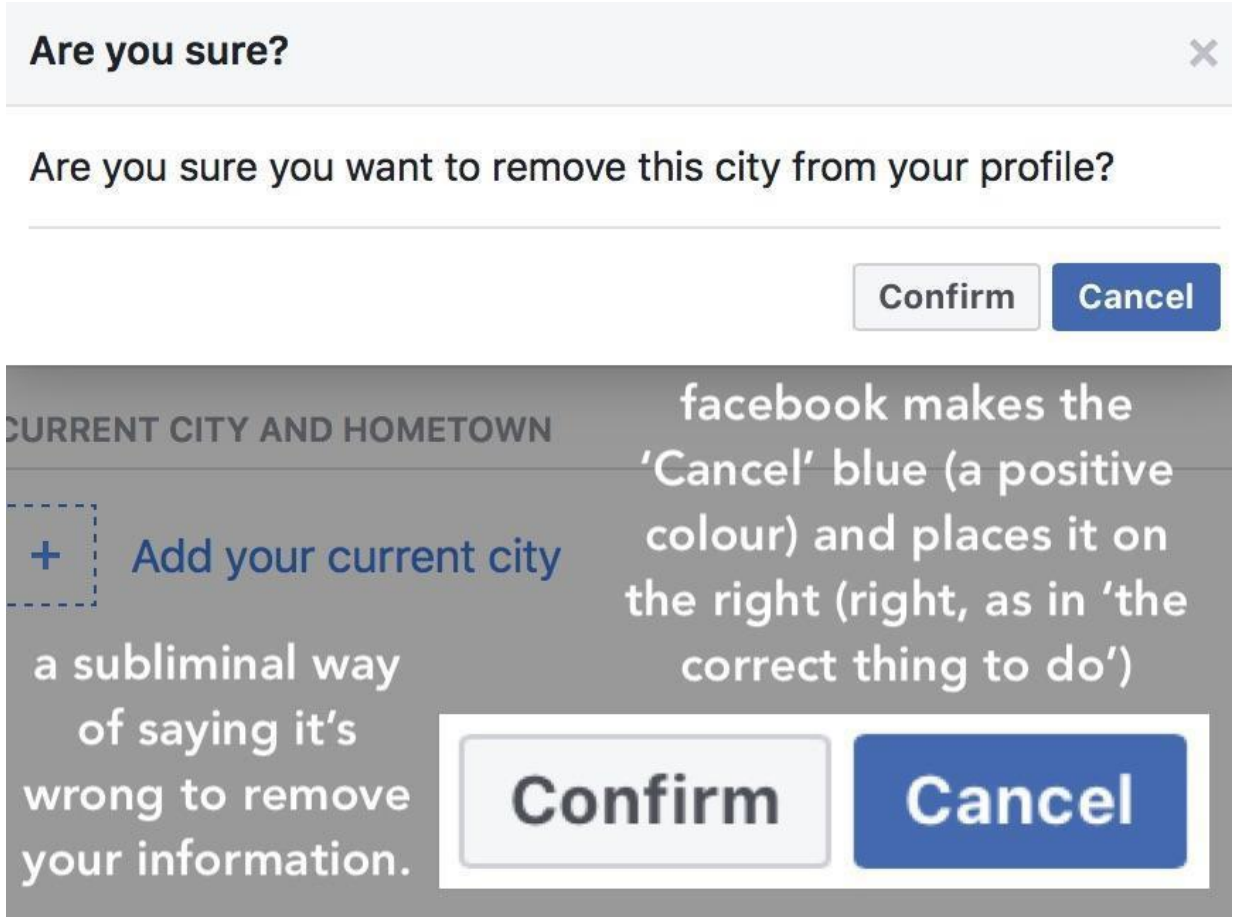
- Addictive design
- Comparison prevention
- Confirmshaming
- Currency confusion
- Disguised ads
- Fake scarcity
- Fake social proof
- Fake urgency
- Forced action
- Hard to cancel
- Hidden costs
- Hidden subscriptions
- Nagging
- Obstruction
- Preselection
- Sneaking
- Trick wording
- Visual interference

Hard to Cancel/Roach Motel



https://www.itispivotal.com/post/dark-patterns

Hard to Cancel/Roach Motel

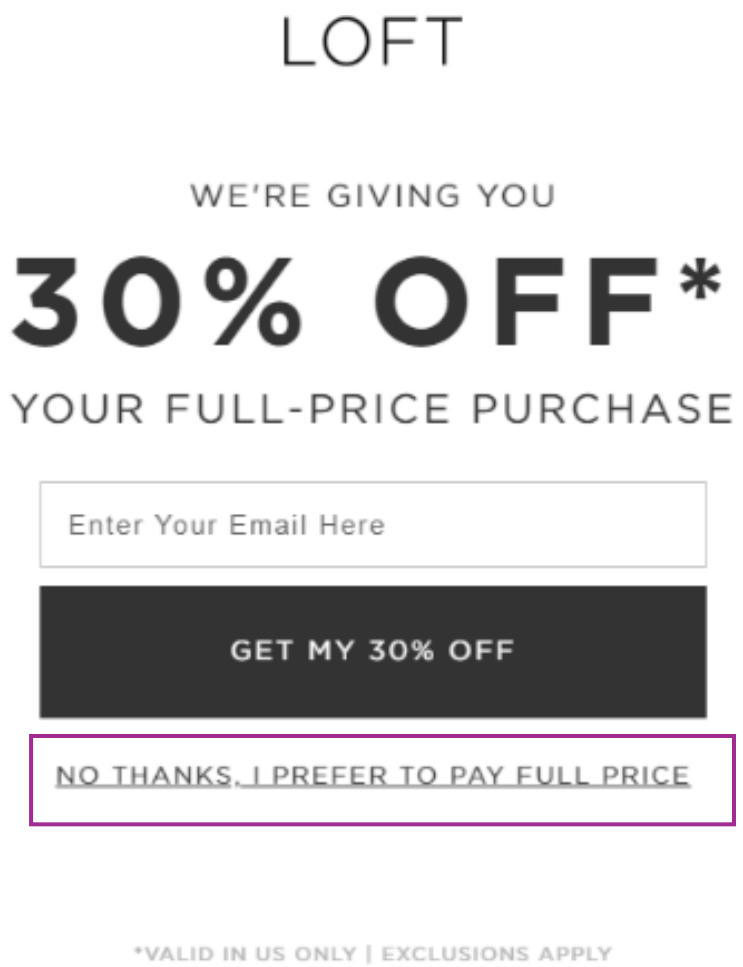


https://www.reddit.com/r/darkpatterns/comments/9g8rnk/f acebooks_data_deletion_dark_pattern/

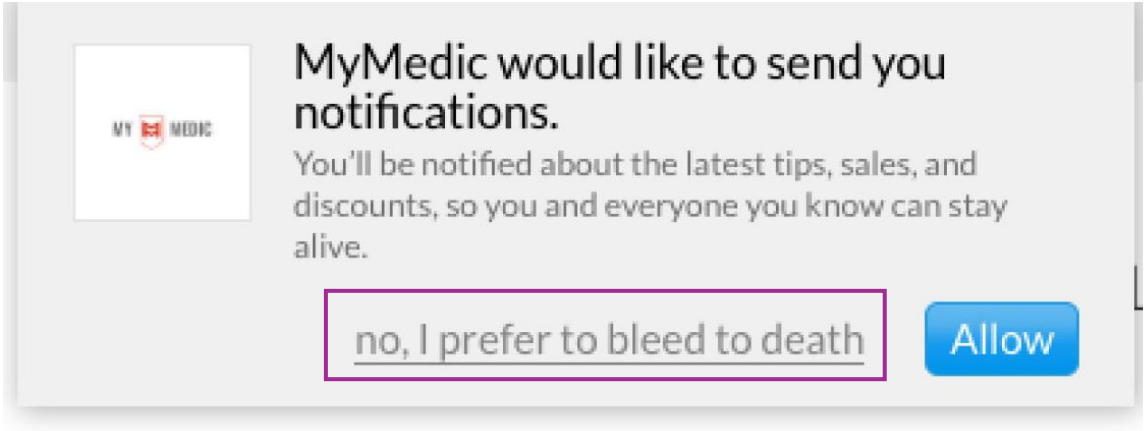
Confirmshaming

- The user is emotionally manipulated into doing something that they would not otherwise have done.
- Wording opt-out button labels in derogatory or belittling ways, making users feel bad about choosing not to engage with the offered service or feature
- Target user’s emotions or self-image
- Aims to increase the likelihood that users will perform the desired action, ultimately benefiting the service provider

Confirm Shaming



https://uxbooth.com/articles/ux-dark-patterns-manipulinks-and-confirmshaming/

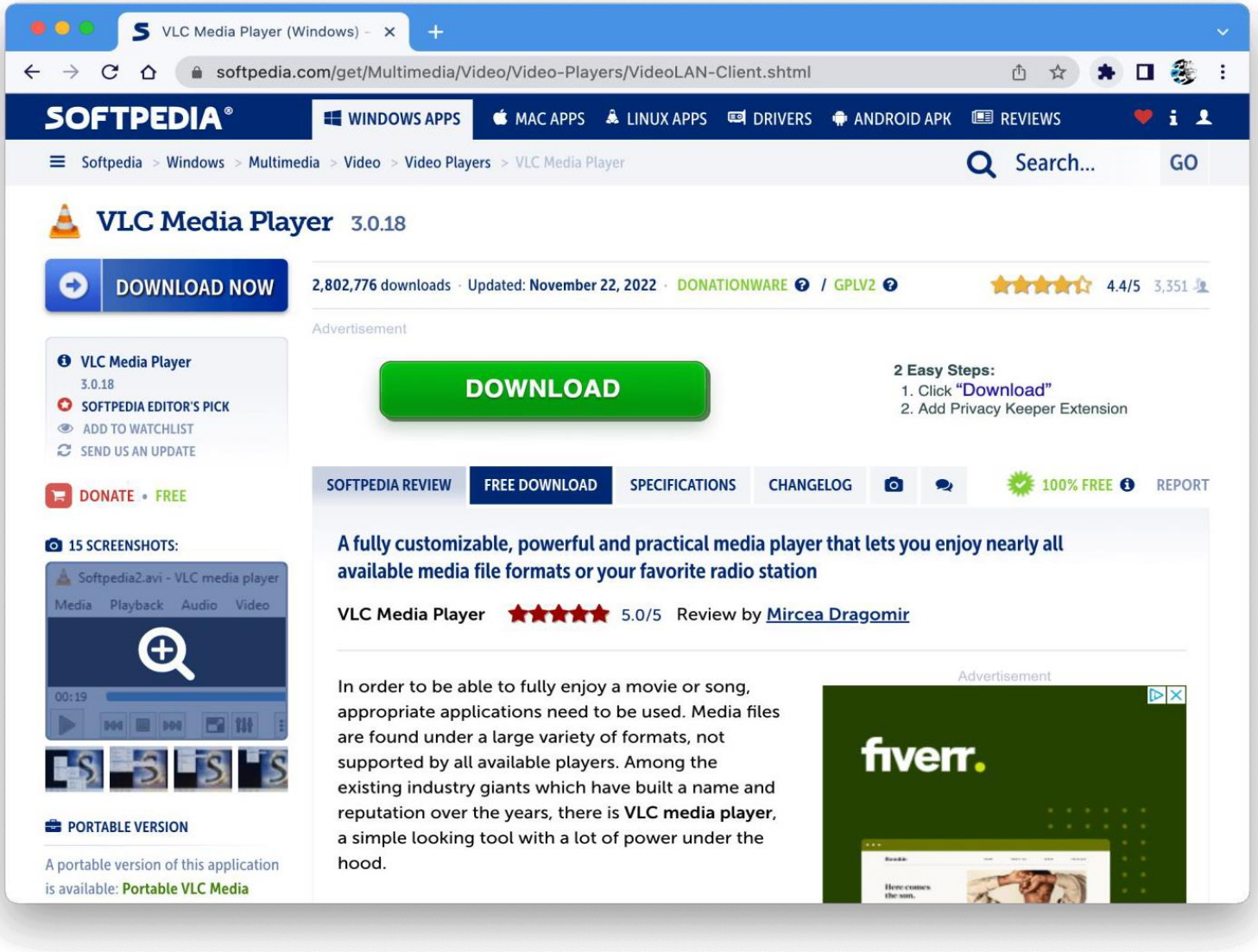


https://www.deceptive.design/types/confirmshaming

Disguised Ads

- Disguising advertisements as interface elements or content
- Deliberately blurring the line between actual content and advertising

Disguised Ads

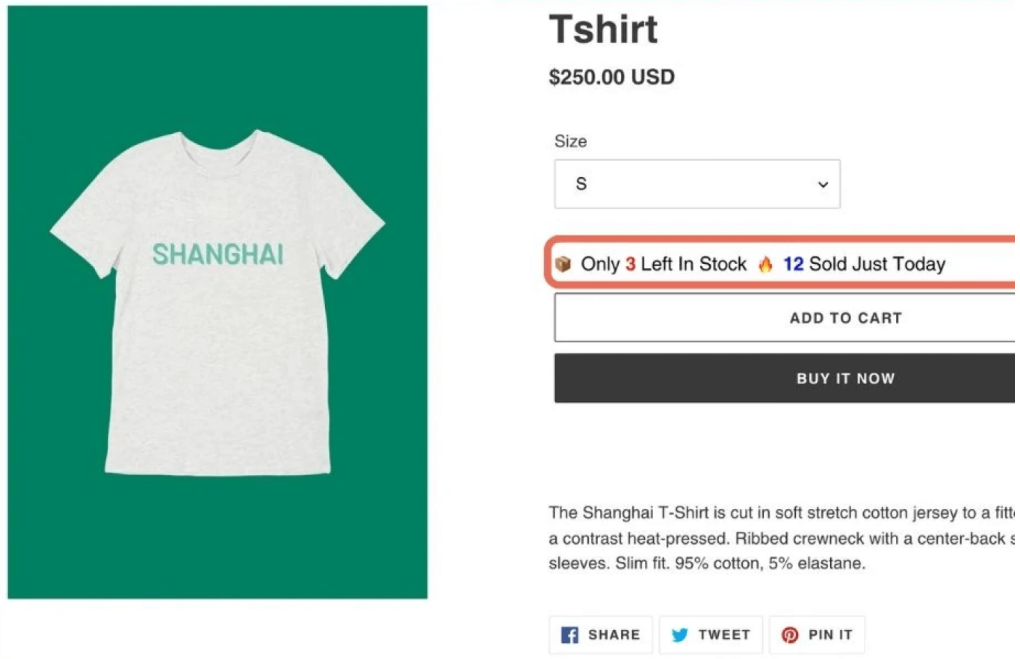


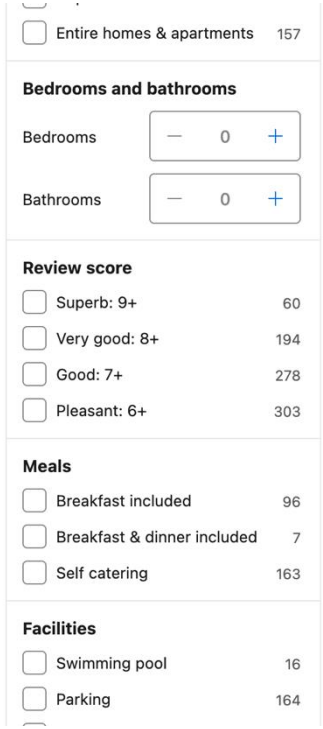
https://www.deceptive.design/types/disguised-ads

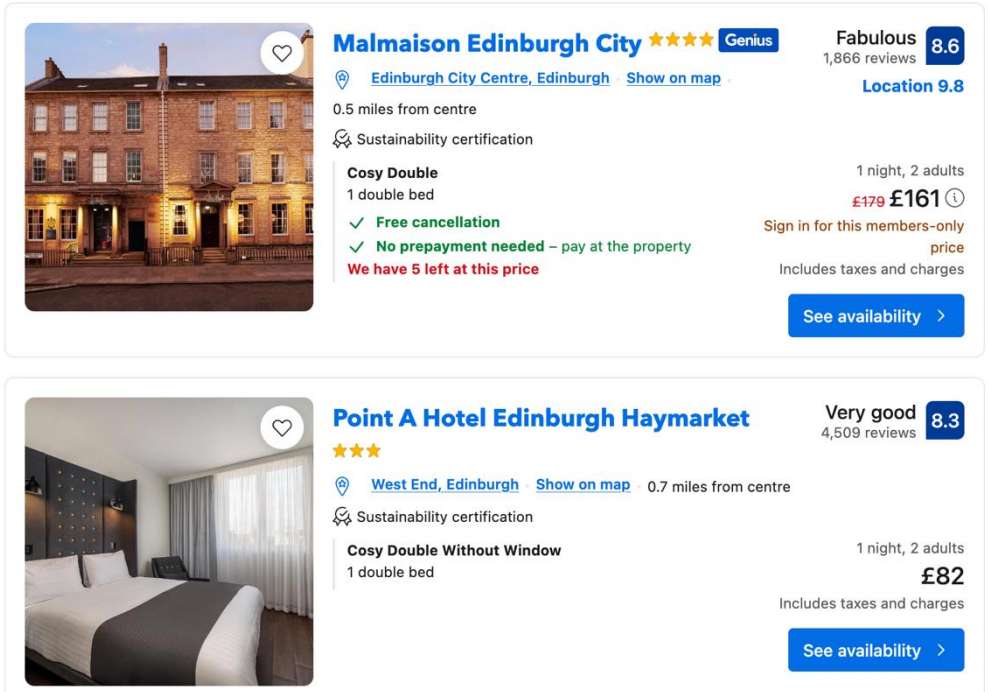
Fake Scarcity/FOMO

- Pressuring the user into completing an action by presenting with a fake indication of limited supply or popularity
- Creating an artificial sense of limited availability around a product or service
- Pushing users to act quickly out of fear of missing out
  → Causes stress and limits careful decision making

Fake Scarcity/FOMO



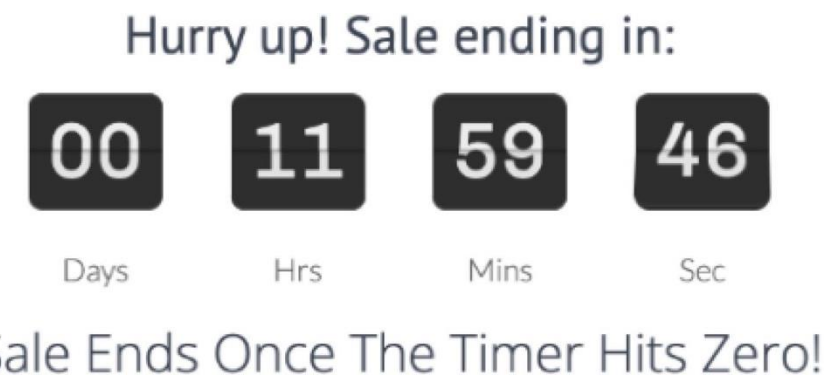


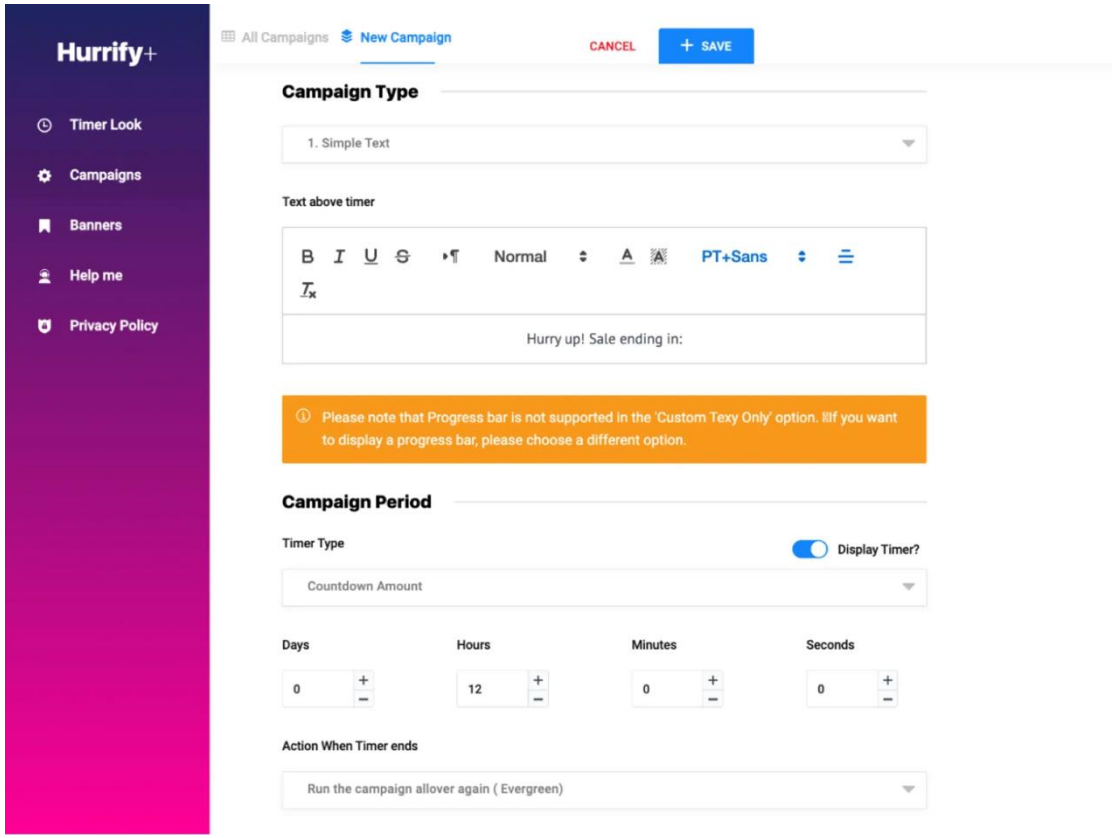


https://www.deceptive.design/types/fake-scarcity

Fake Urgency

- The user is pressured into completing an action because they are presented with a fake time limitation.



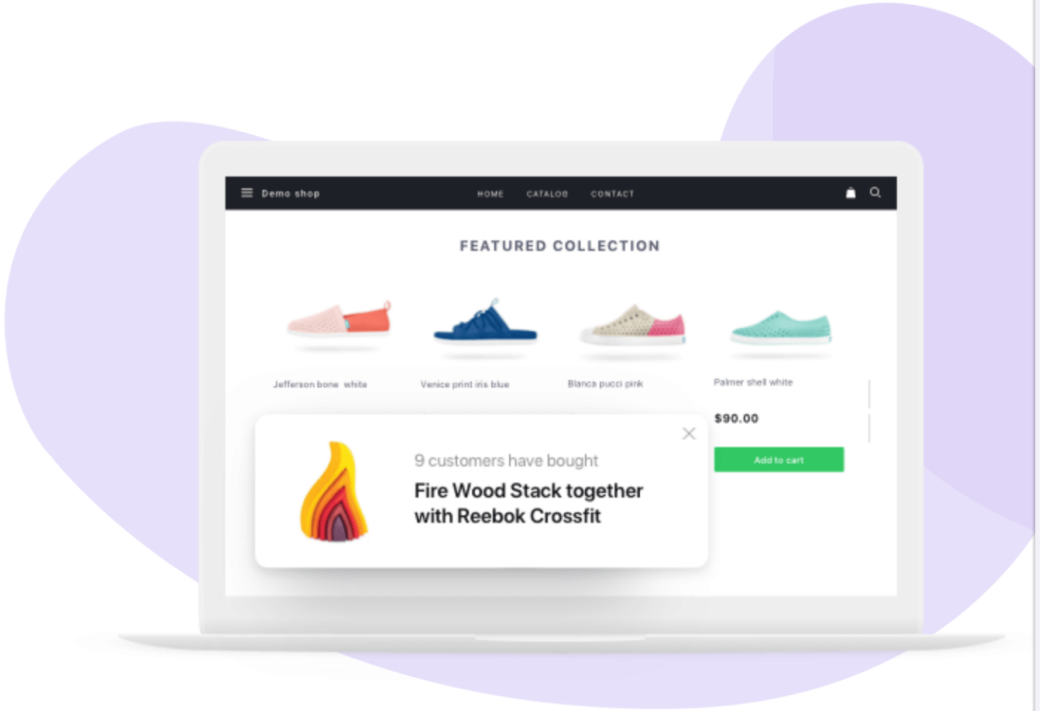


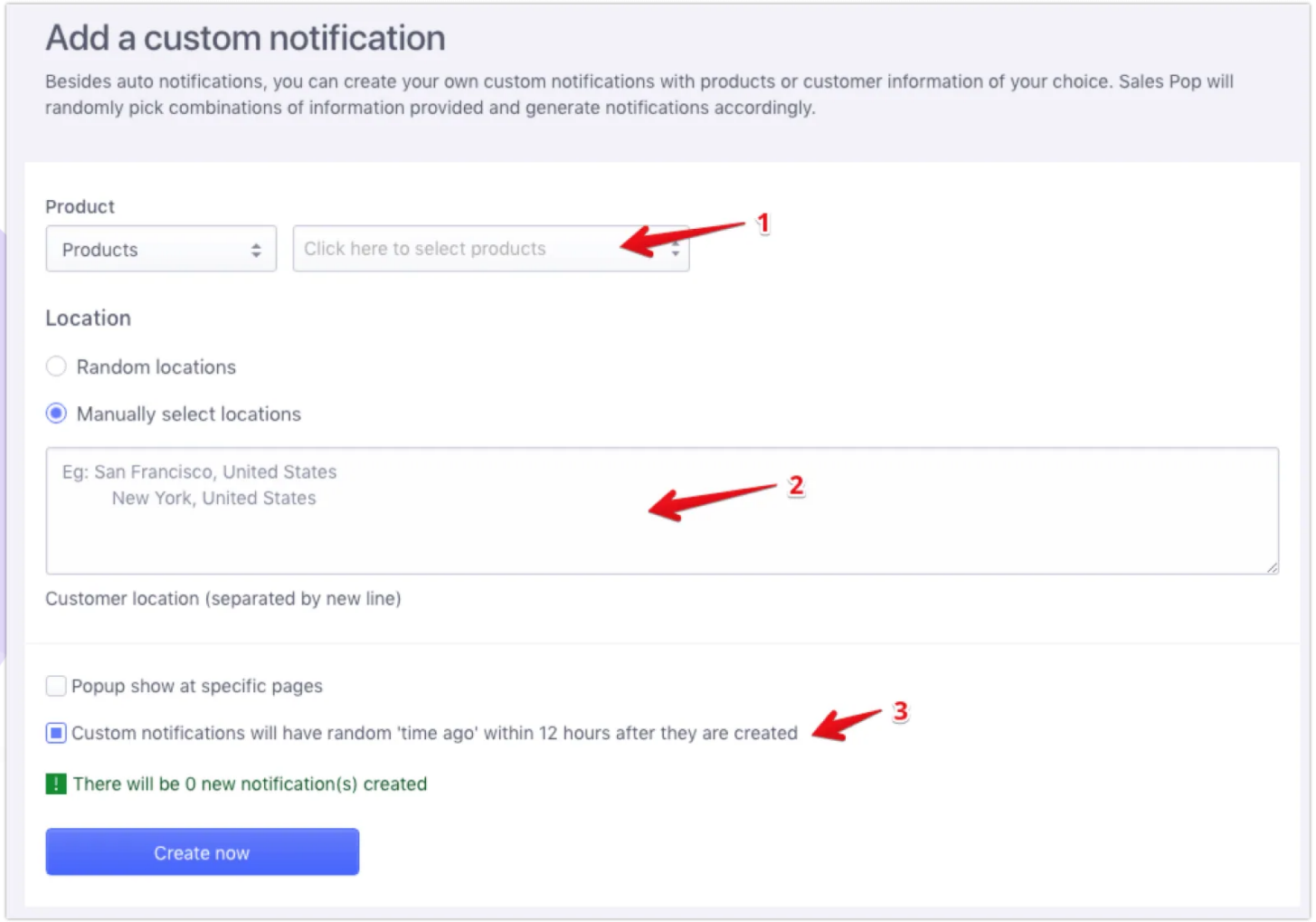
https://www.deceptive.design/types/fake-urgency

Fake Social Proof

- Presenting fake or exaggerated endorsements (reviews, testimonials, activity messages to make users believe a product is more popular or credible than it is

Fake Social Proof





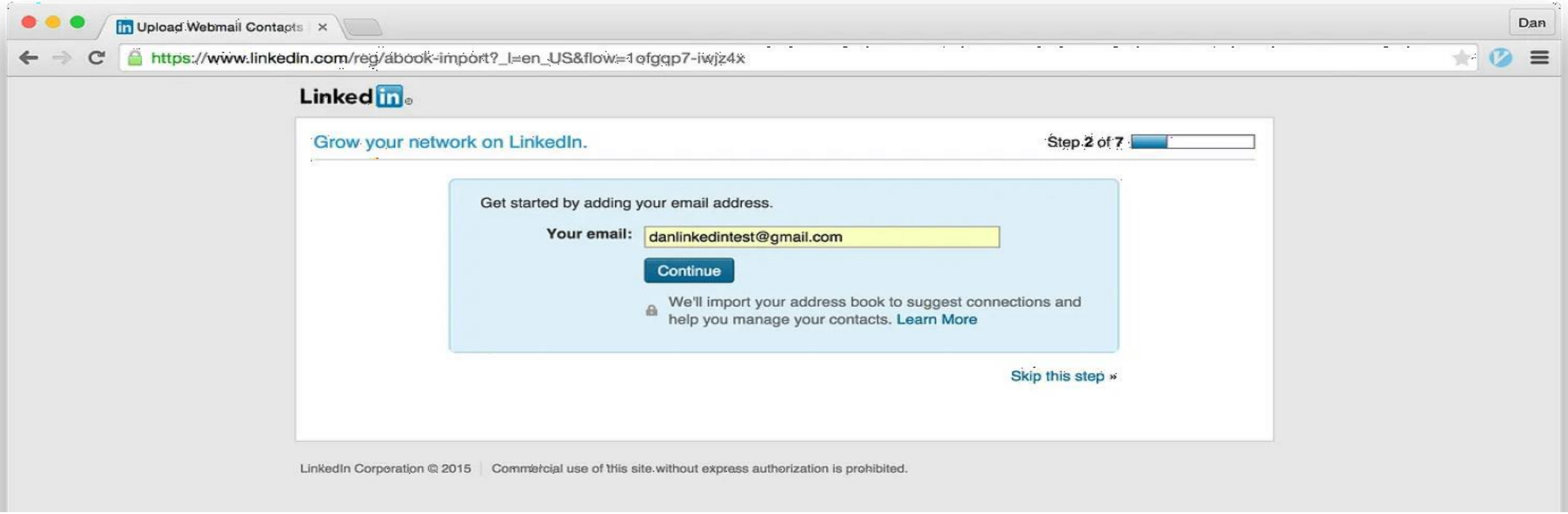
https://www.deceptive.design/types/fake-social-proof

Forced Action

- The user wants to do something, but they are required to do something else undesirable in return.

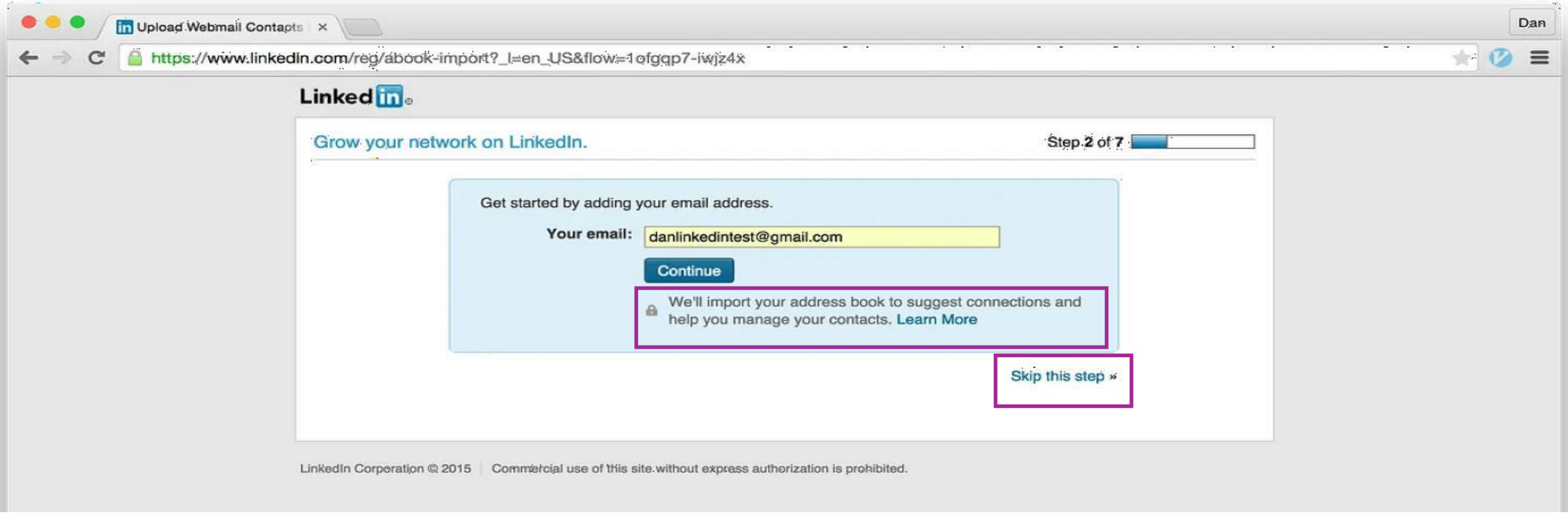
https://www.deceptive.design/types/forced-action

Forced Action



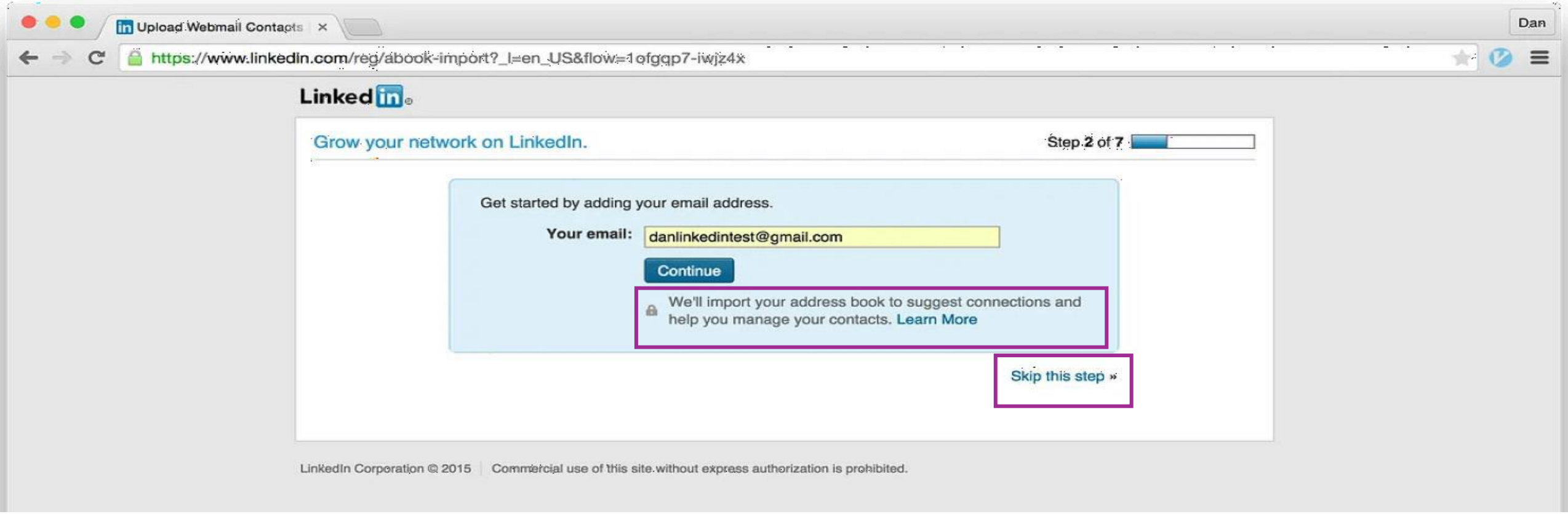
https://www.deceptive.design/types/forced-action

Forced Action



https://www.deceptive.design/types/forced-action

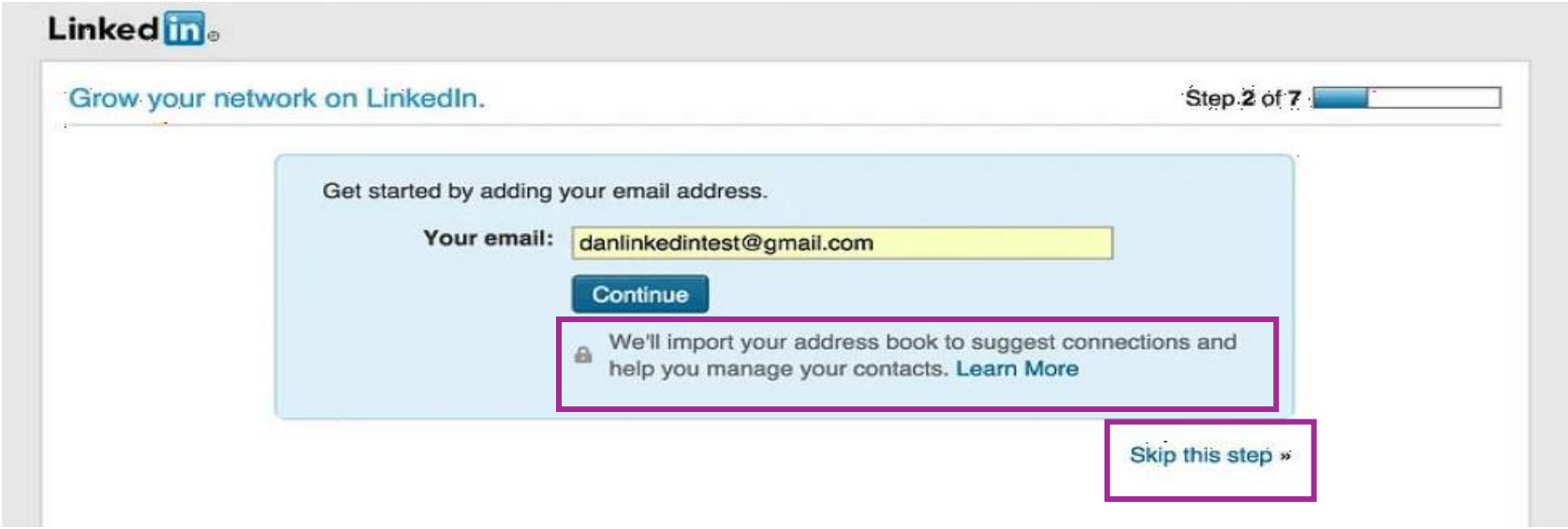
Forced Action



https://www.deceptive.design/types/forced-action

Obstruction

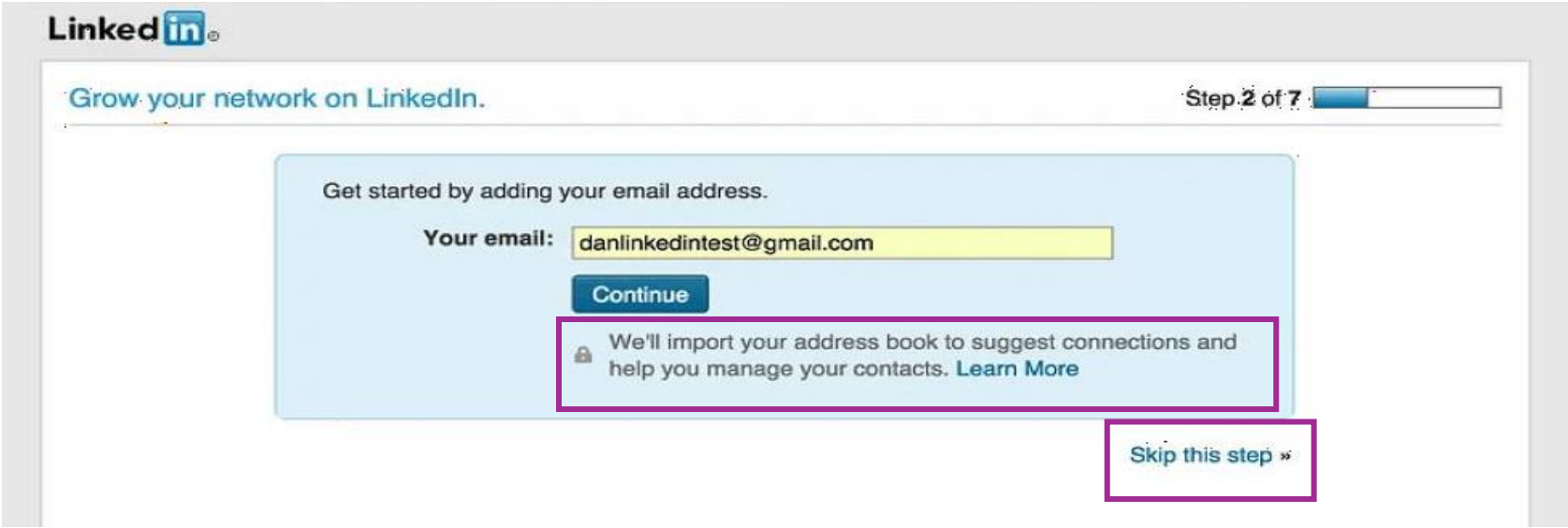
- Creating obstacles making it hard for the user to complete their task or access information



https://www.deceptive.design/types/obstruction

Visual Interference

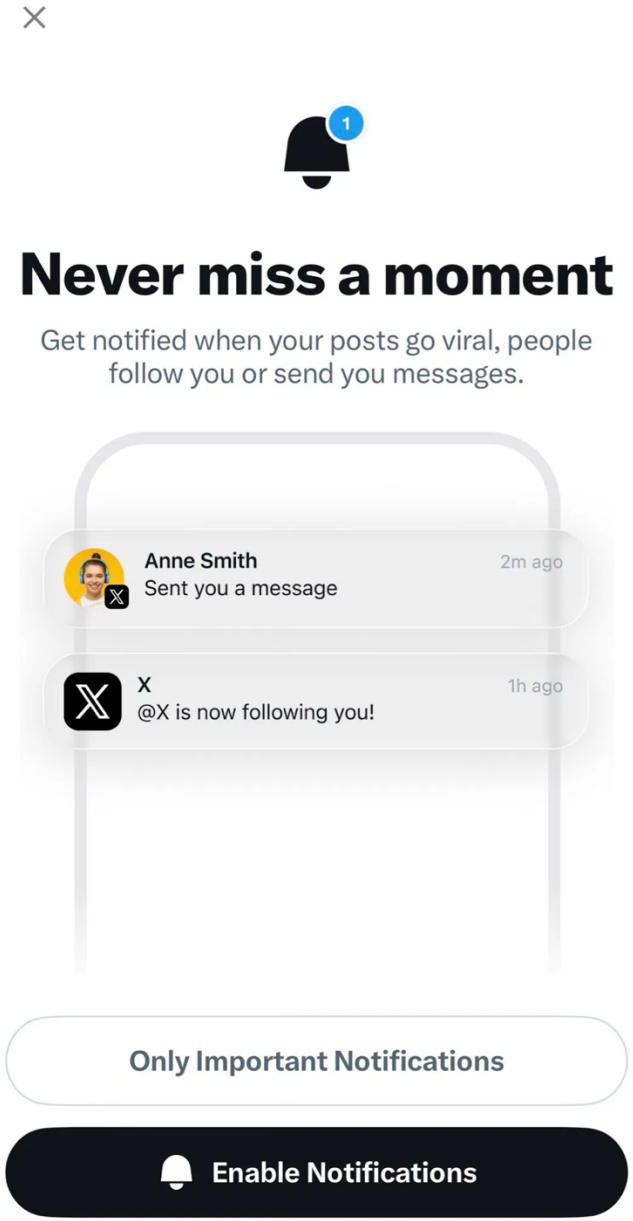
- The user expects to see information presented in a clear and predictable way on the page, but it is hidden, obscured or disguised.



https://deceptive.design/hall-of-shame/browse/?sel=%2Farticles%2Ftwitter-hides-the-option-to-opt-out-of-notifications%2F

Visual Interference

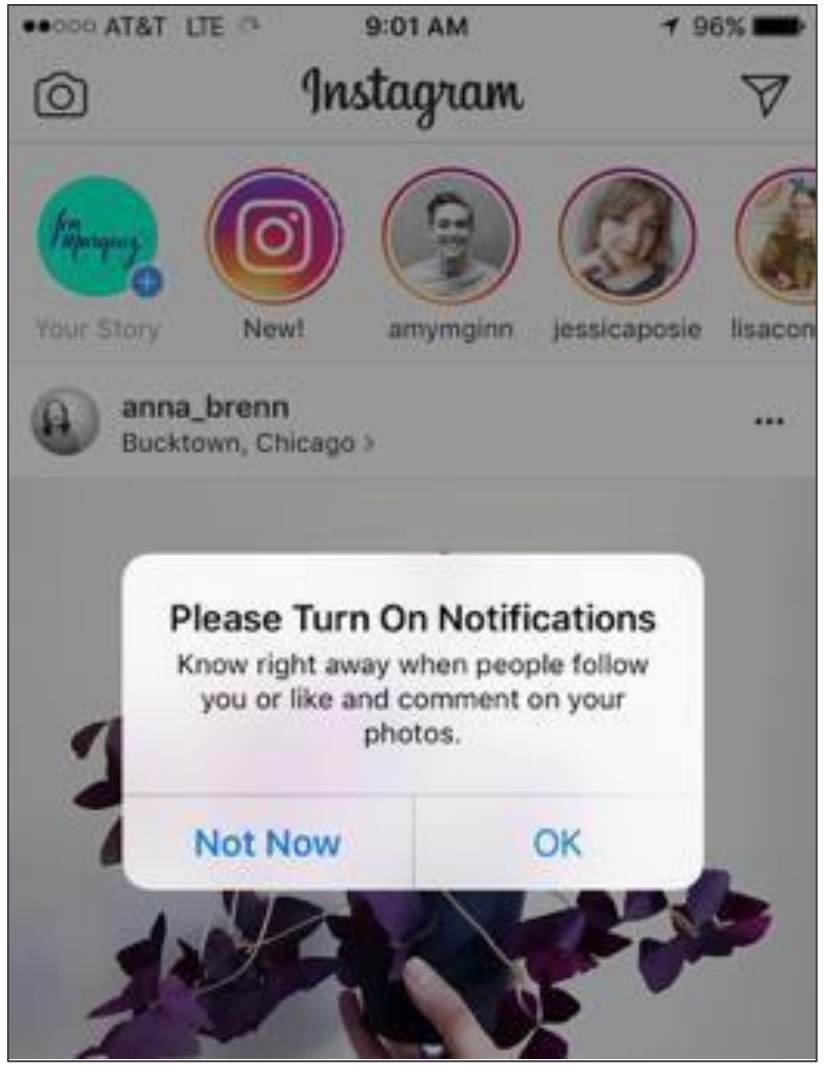
- The user expects to see information presented in a clear and predictable way on the page, but it is hidden, obscured or disguised.



https://deceptive.design/hall-of-shame/browse/?sel=%2Farticles%2Ftwitter-hides-the-option-to-opt-out-of-notifications%2F

Nagging

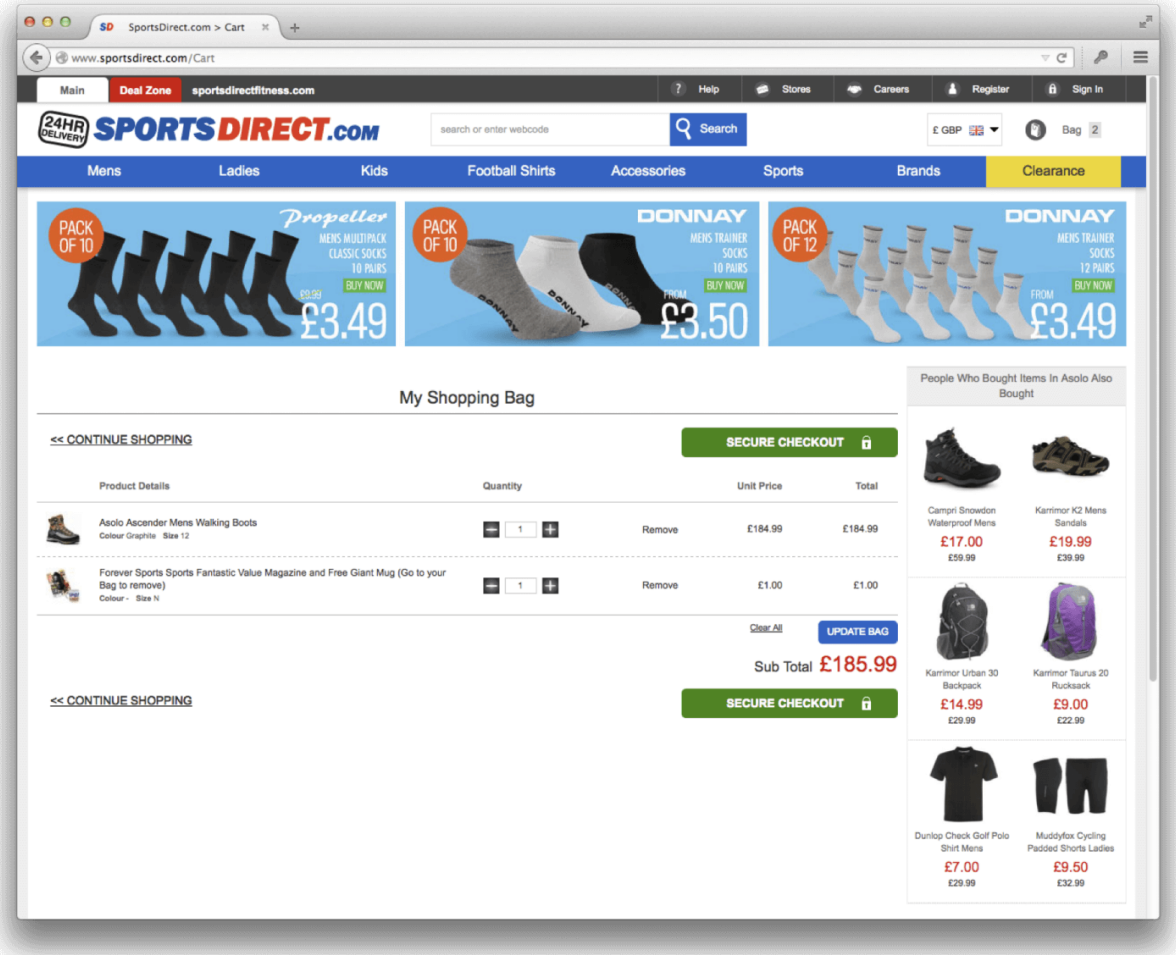
- Persistent requests to do something that may not be in the user's best interests



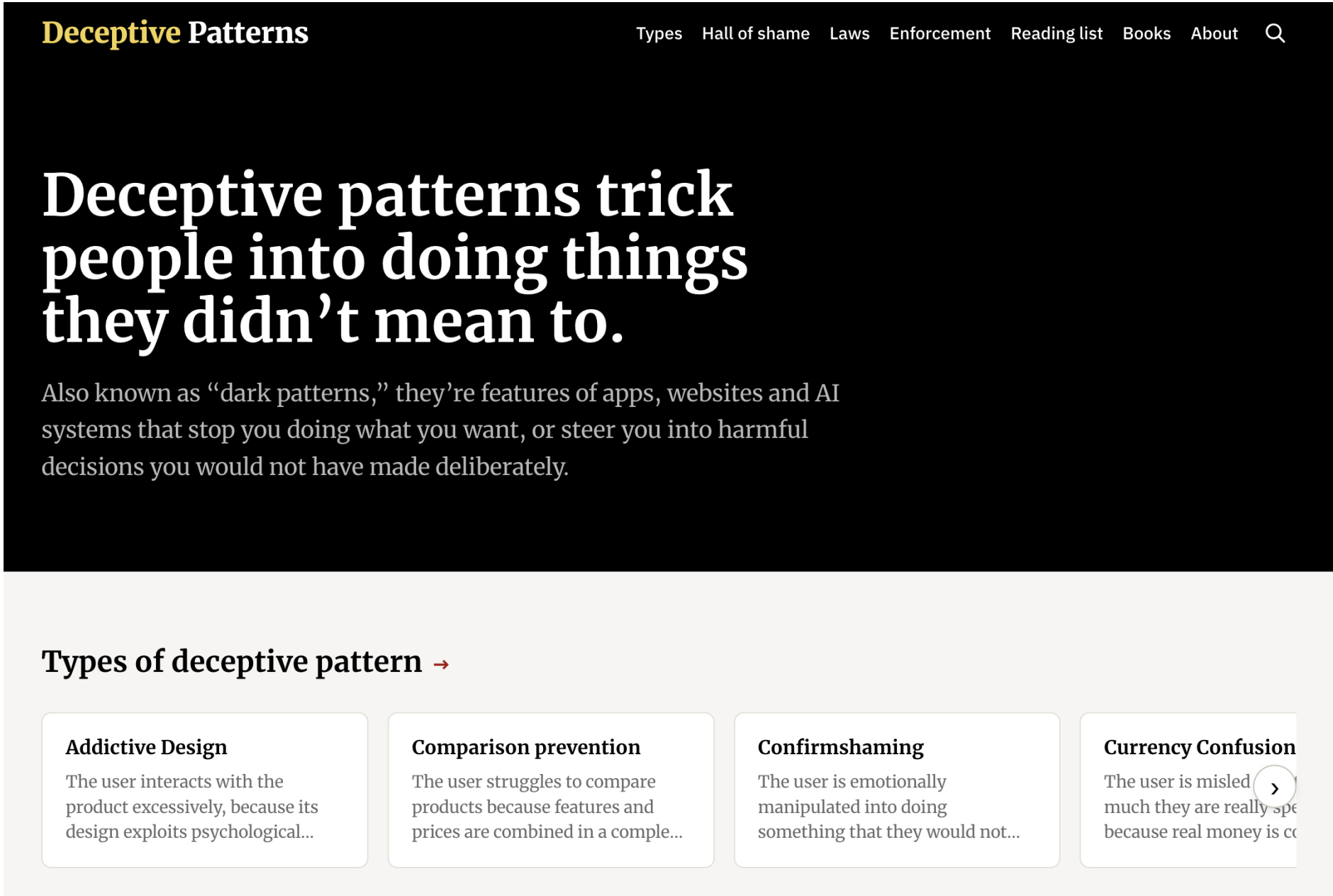
https://darkpatterns.uxp2.com/pattern/instagram-no-option-for-no/
https://www.deceptive.design/

Sneaking

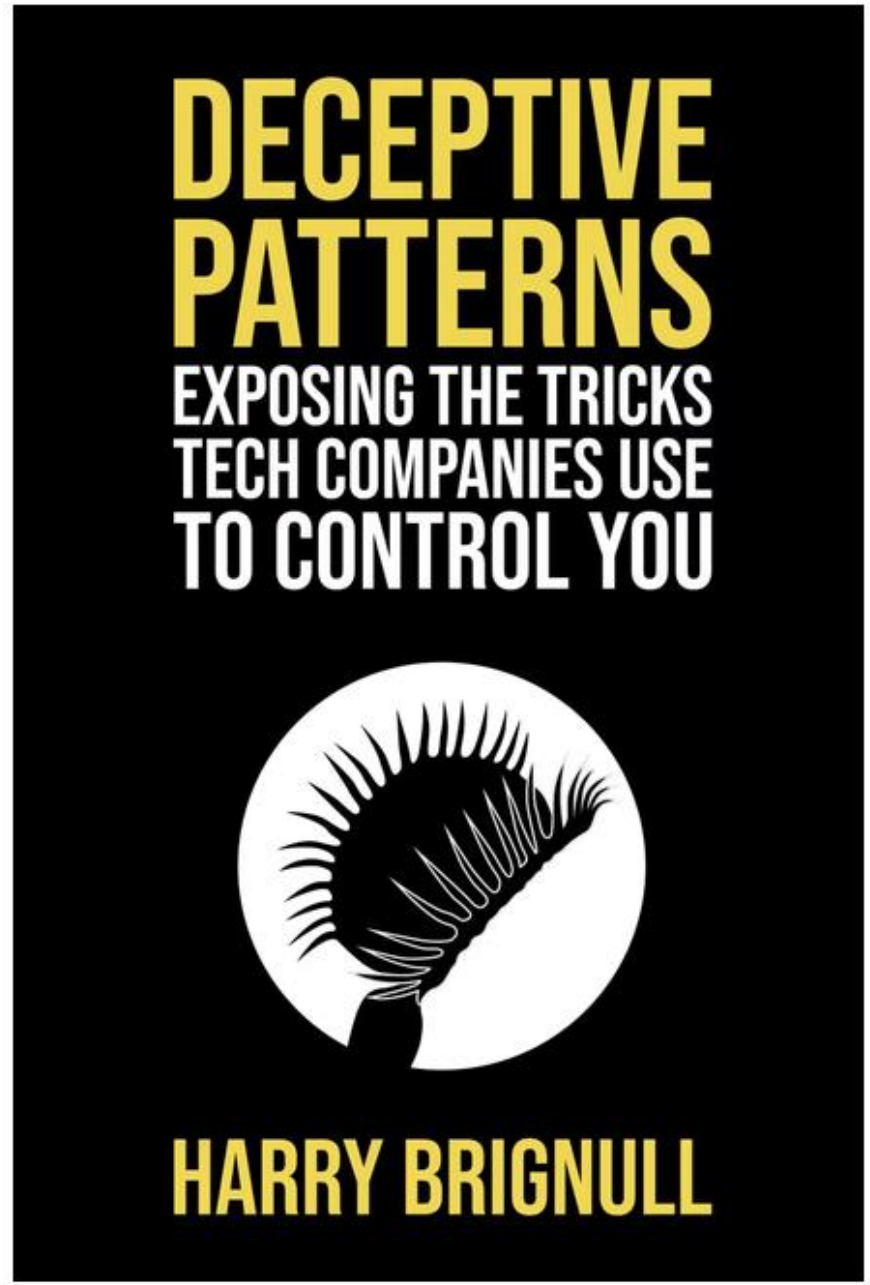
- The user is drawn into a transaction on false pretenses, because pertinent information is hidden or delayed from being presented to them



https://www.deceptive.design/types/sneaking



https://deceptive.design/



https://deceptive.design/

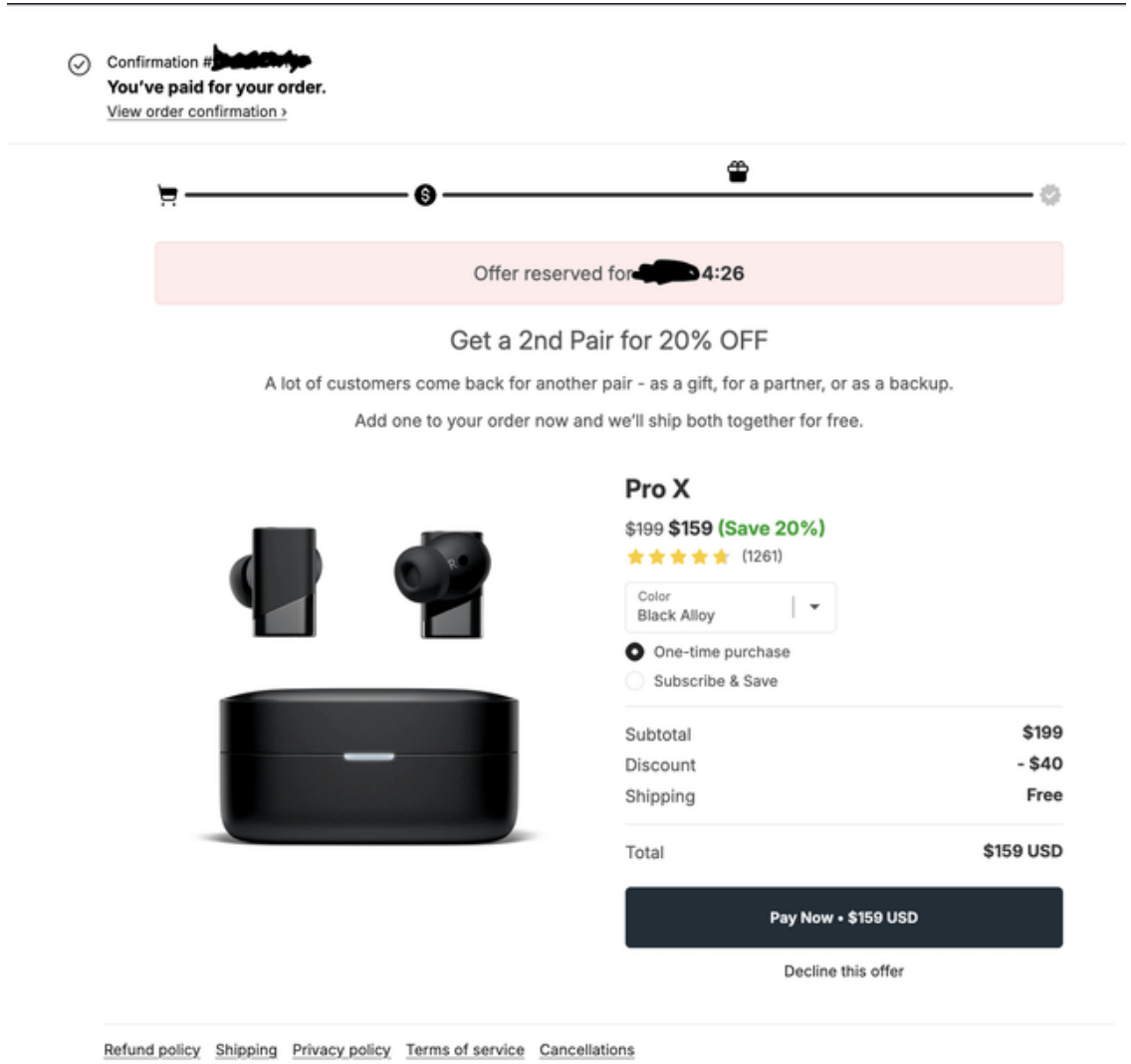
ethical design

Ethical Design Principles

- **Transparency:** clear communication
- **Informed consent:** opt-in rather than op-out, granular permissions
- **Autonomy:** easy deactivation or deletion, no pressure tactics, voluntary notifications
- **Design for clarity:** simple navigation, unambiguous language, highlight key actions
- **User wellbeing:** healthy usage prompts, minimise addictive features (infinite scroll, autoplay), inclusive design
- **Privacy:** accessible privacy policies, minimal data collection, user data control, data security

Activity

- On the next slides are 3 screenshots of real-life interfaces using dark patterns
- Work in groups to identify the dark patterns in each example and suggest how they would redesign them to be more ethical
- Class discussion



https://www.reddit.com/r/assholedesign/comments/1xma3ic/order_confirmation_page_looks_like_the_checkout/

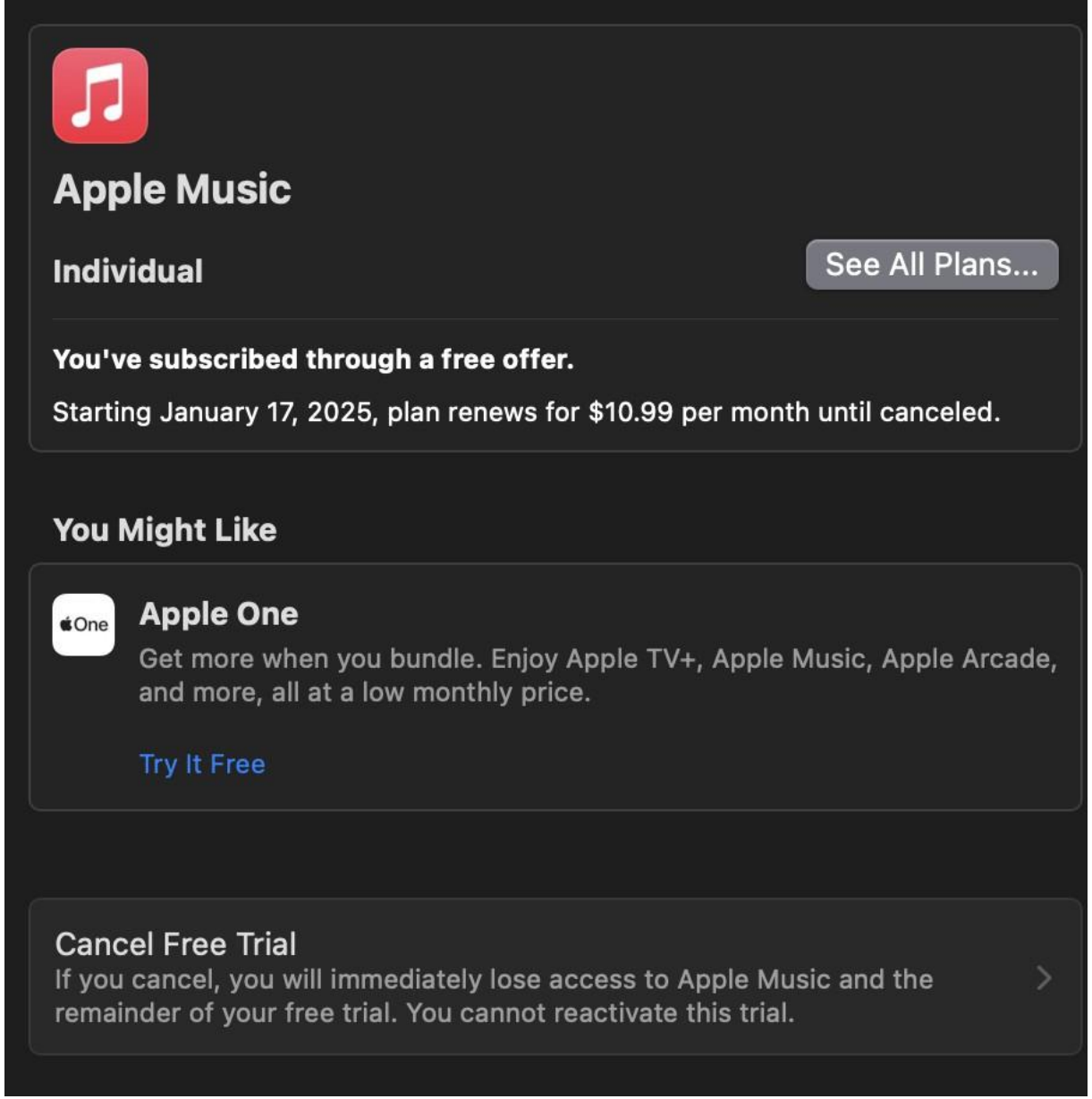


Allow Instagram to use your app and website activity?

To provide a better ads experience, we need permission to use future activity that other apps and websites send us from this device. This won't give us access to new types of information. **Learn more** about how we limit our use of your activity if you turn off this device setting, and related settings on Instagram.

Make Ads Less Personalized

Make Ads More Personalized



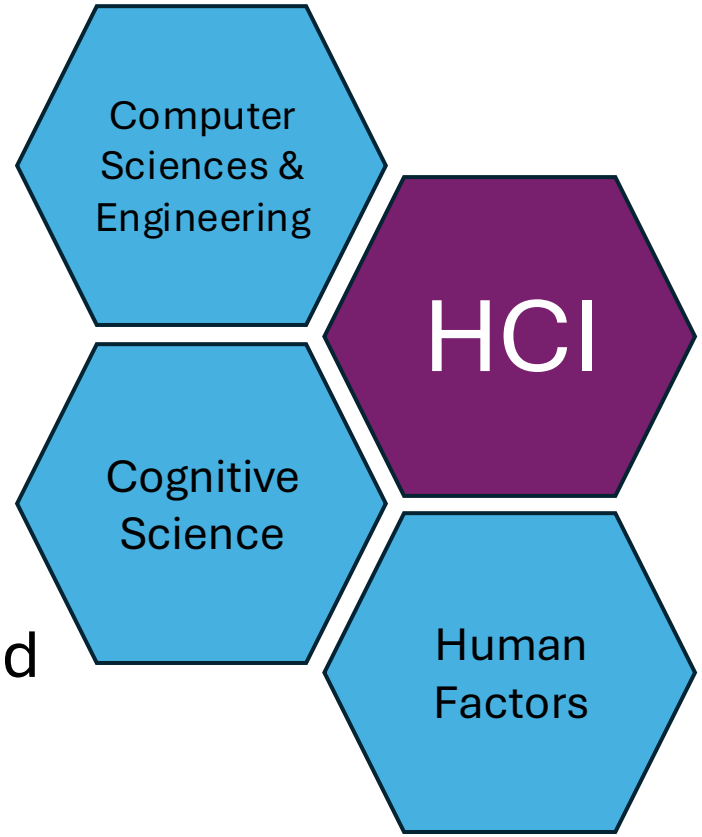
https://www.reddit.com/r/assholedesign/comments/1g664x4/apple_doesnt_let_you_cancel_your_free_trial_to/#lightbox

applying critical theory to HCI and interaction design

1st wave of HCI

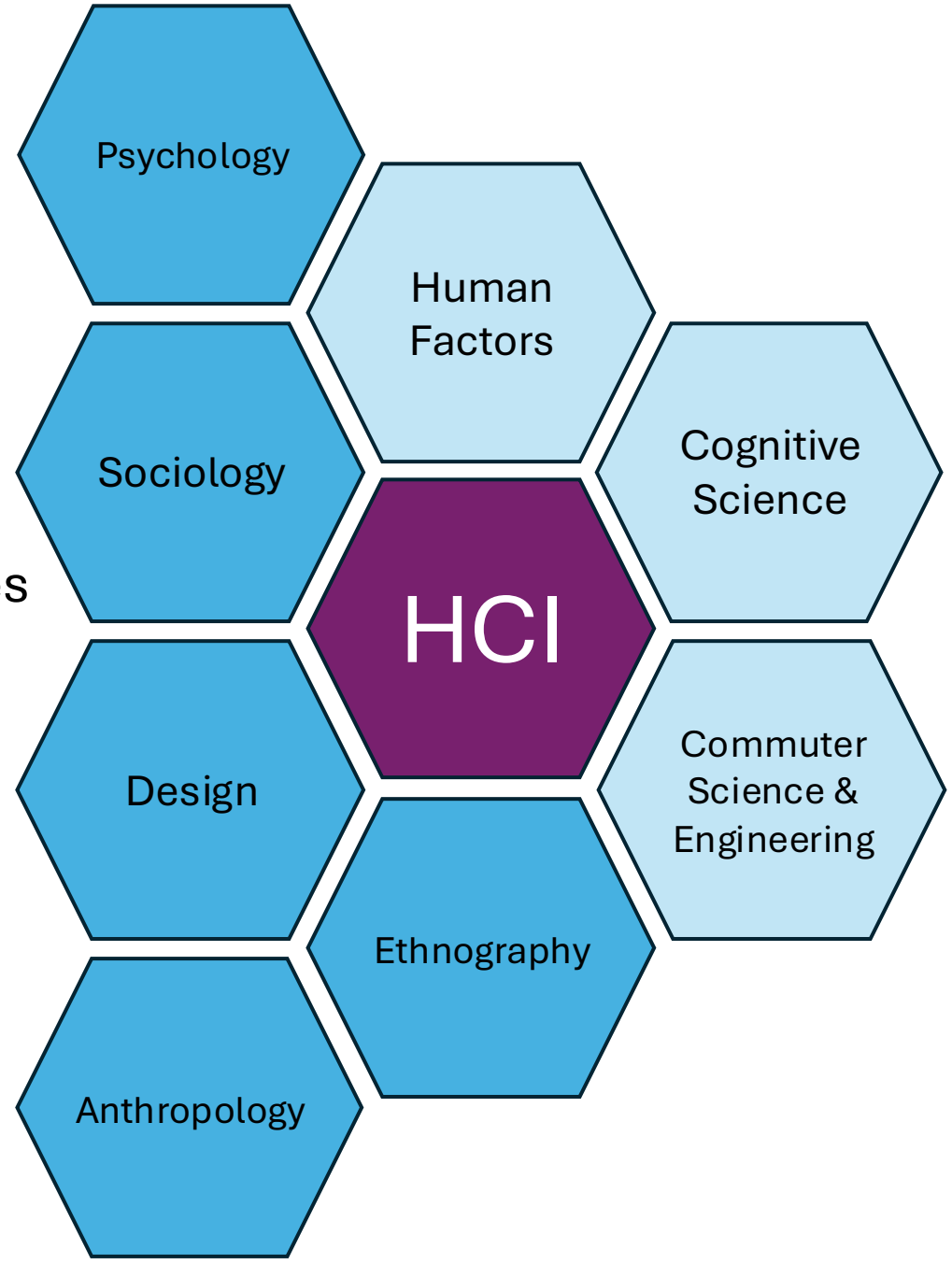
- Focus on very specific tasks and usage scenarios
  - Mostly work-related scenarios
  - Assumed the individual use of (desktop) computers
- Focus on efficiency, effectiveness, safety
  - Usability defined based on error rates and speed
- Humans as simple models to be studied through rigid guidelines, formal methods, systematic testing
  - → Quantitative methods
  - → Generalizability
- Goal: the development of clear design guidelines

→ Context and human agency are not taken into effect



2nd wave of HCI

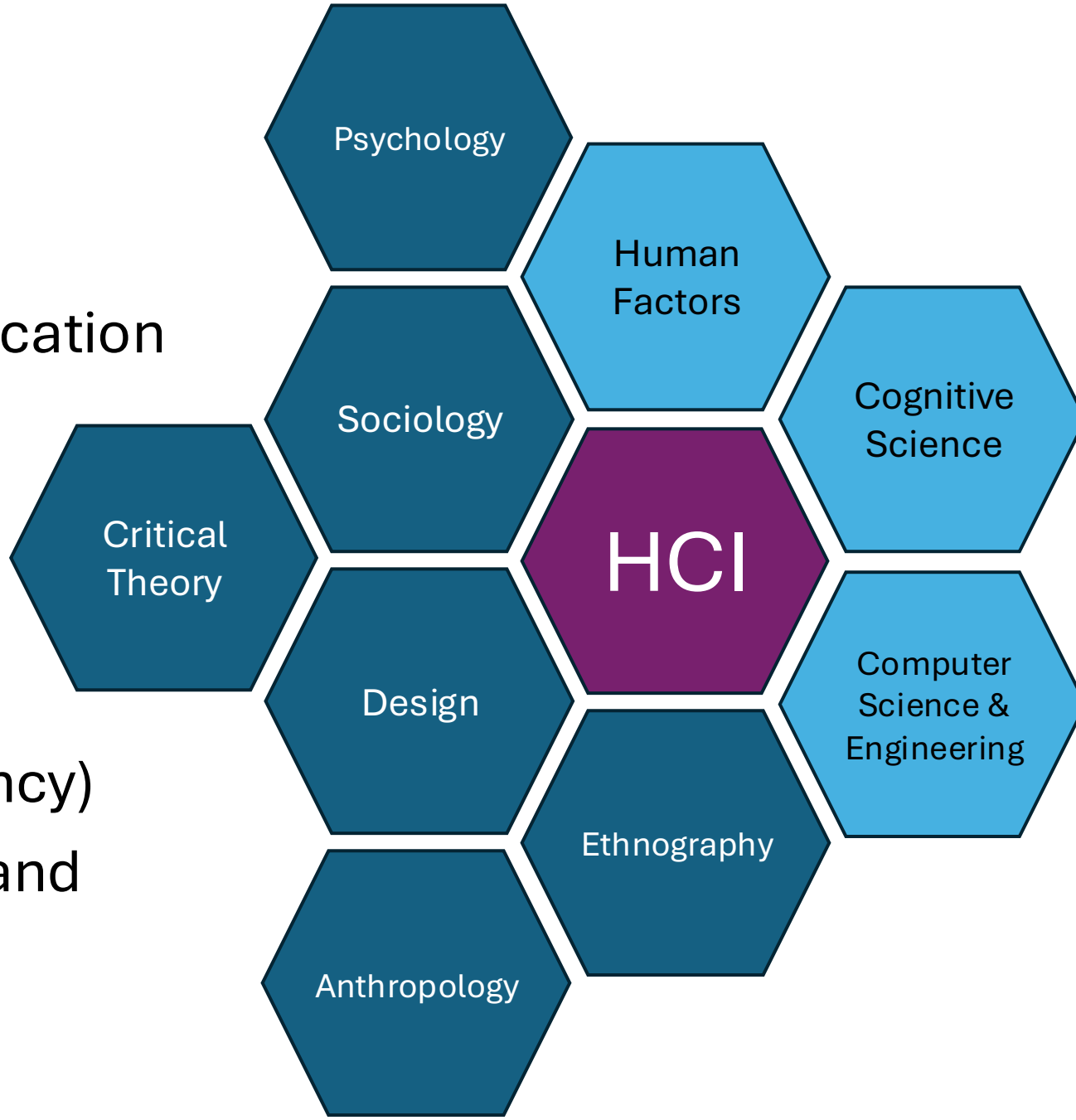
- "From human factors to human actors"
- Consideration of groupwork
  - Groups working with collections of applications
  - Work settings and well-established communities of practice (e.g., organizations)
- Focus on efficiency remains
- Context becomes important in the analysis and design of HCI
- Expansion of methods
  - Participatory design workshops
  - Prototyping
  - Contextual inquiry



3nd wave of HCI

- Broadening of context and application types beyond the workplace
  - Home
  - Everyday lives
  - Culture

- Challenging values (e.g., efficiency)
- Embrace **situated experience** and meaning making



critical theory & HCI

- Applies critical perspectives to HCI, building on the family of theories grounded in the humanities that aim at a critique and transformation of society
- Provides tools to critically interrogate HCI research and practice

- Technology is not neutral
- All knowledge is situated

Feminist HCI

- How do gender identities and relations in general shape our interaction with technology and technology design?
- What unspoken values exist within HCI and interaction design research and practice?
- What assumptions and expectations do we as designers introduce into the design and evaluation process?

Shaowen Bardzell. Feminist HCI Feminist HCI: Taking Stock and Outlining an Agenda for Design. Proceedings of CHI 2010. https://dl.acm.org/doi/pdf/10.1145/1753326.1753521

Feminist interaction design qualities

- Pluralism
- Participation
- Advocacy
- Ecology
- Embodiment
- Self-disclosure

Shaowen Bardzell. Feminist HCI Feminist HCI: Taking Stock and Outlining an Agenda for Design. Proceedings of CHI 2010. https://dl.acm.org/doi/pdf/10.1145/1753326.1753521

Pluralism

- Resists the idea of “universal” design that often imposes Western perspectives
  - There is no “universal” usability
  - There is no “universal” accessibility
- Instead emphasize and embrace cultural, social, regional, national differences in user experience
- Tailored, pluralists designs are human-centred, embracing the “human” as too rich, diverse and complex to bear a universal solution

Pluralists (interaction) design

- Foregrounds questions of cultural difference
- Constructive engagement with diversity
- Embracing the margins to be more inclusive and to benefit from the marginal as a resource for design solutions
- Practical questions
  - Whose voices are not represented on the design team but might be important for the conceptualization of the project?
  - Who is being envisioned as the ideal user?
  - How could additional perspectives be accommodated, even those considered marginal?
  - Whose perspectives have been excluded from the design process?
  - Whose worldviews does the design represent?

Participation

- Embrace participatory design approaches that encourage an ongoing dialogue among designers and users which can lead to valuable insights
- Complements scientific approaches that postulate distance between the researcher/designer and the user
- Respect for individual expertise (not necessarily professional, but also experiential)
- Examples
  - Museum visitors contribute to exhibit design
  - Patients, medical professionals and software developers collaborate on developing technology in the health context

Participation

- Practical questions
  - How can we leverage human-centered design and participatory design methods to learn about and with our end users, including learning more about their culture, history, circumstances, and worldviews?
  - How can we let these insights shape our design practice and change our notions about what constitutes “good”, “valuable”, “responsible” technology?

Advocacy

- Technology is political
- Bring about political emancipation
- Force designers to question their own position on what is an “improved society” and how to achieve it
- Linked to participation/participatory design
  - Authority is distributed
  - Decision making processes evolve through a dialogue between stakeholders

Ecology

- Awareness of the impact of a design artefact/technology on the context in which it is used
- How does the context influence the use of the artefact?
- How does the artefact influence the context (and people) in which it has been placed?

→ Studying interactive technology in-the-wild

Embodiment

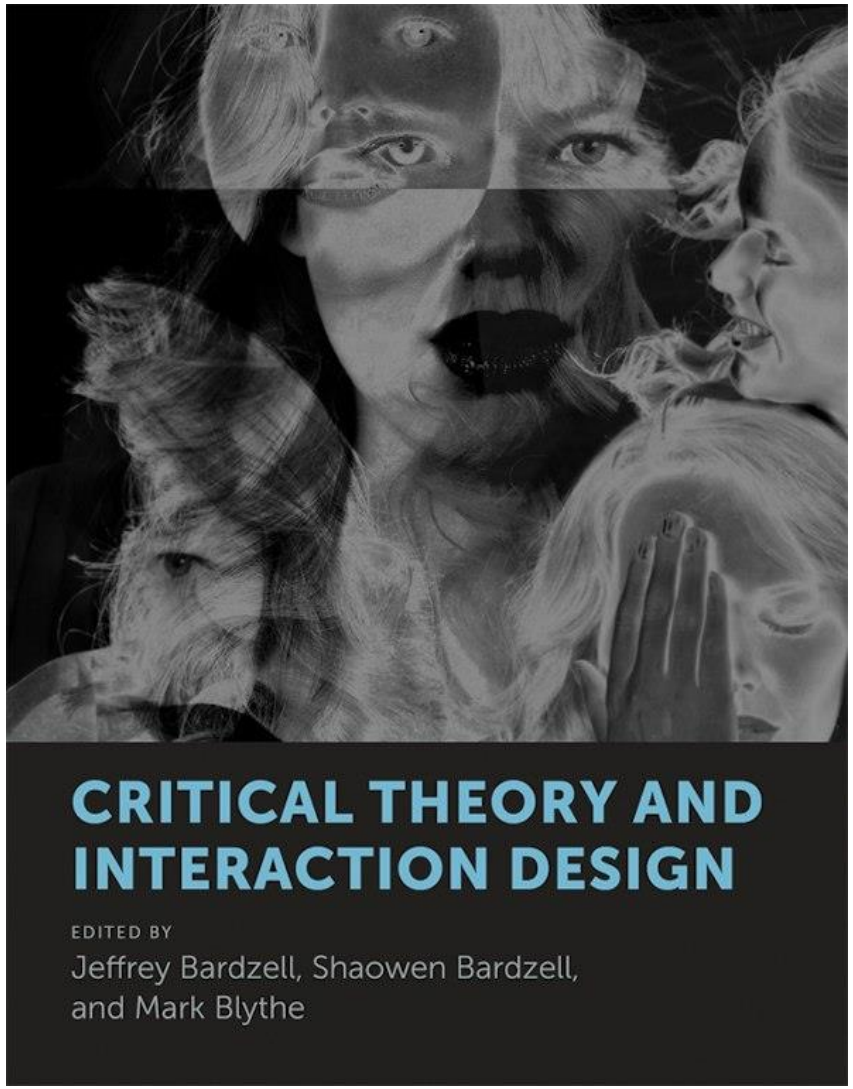
- Early HCI focused mostly on cognitive processes, understanding users in disembodied ways
- HCI today largely embraces the embodied nature interaction, including
  - Gender commonalities and differences
  - Gender identity
  - Human sexuality
  - Pleasure and desire
  - Emotion
  - …

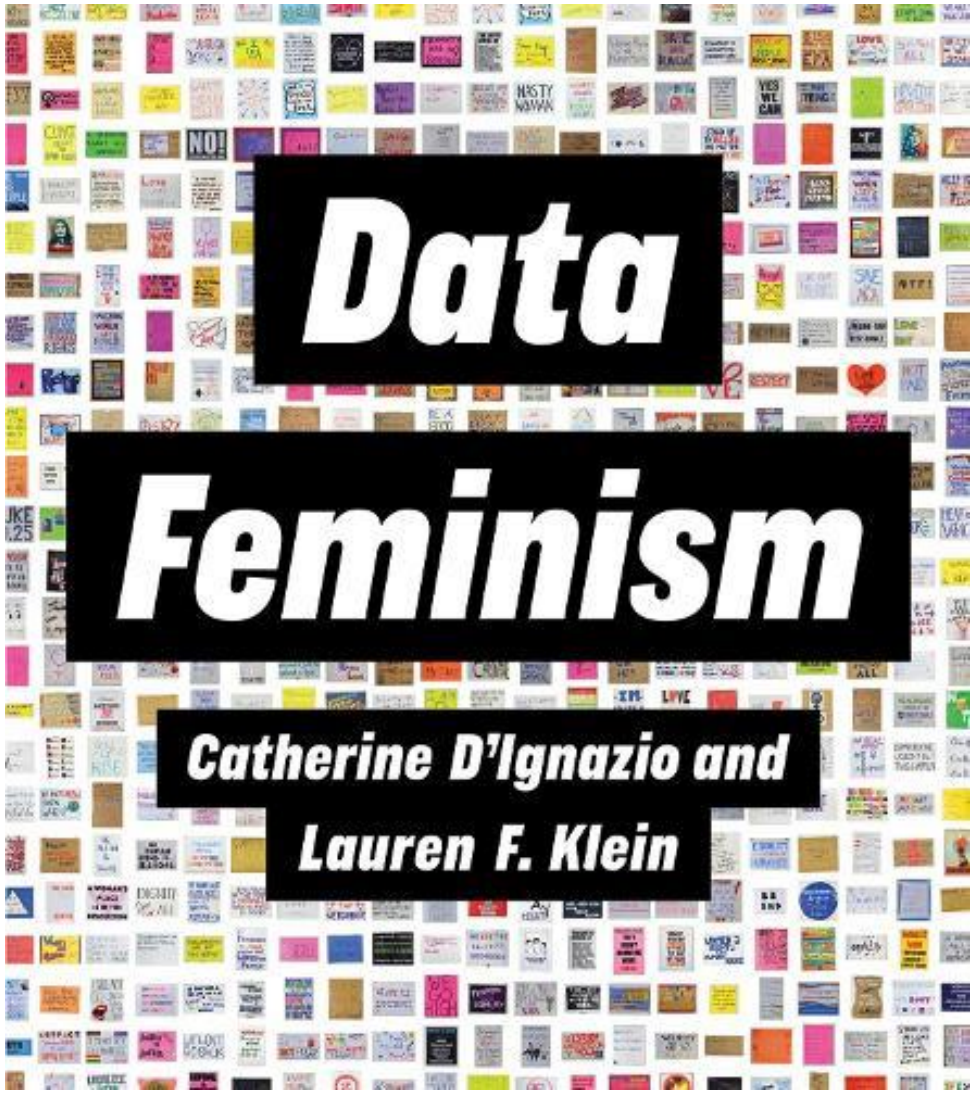
Embodiment

- Practical questions
  - How can we leverage embodied and affective experience to enhance interaction design and engage users?
  - What kinds of embodied and affective experience is meaningful to end users?
  - What kinds of expertise might we need on our design team in
  - order to do that? (e.g. fine art, graphic design, animation, or communication specialists)

Self-disclosure

- Every design is grounded in assumptions about users
  - What they know
  - What they would like to do or know
  - In what context they interact with the technology in focus
  - …
- Every design projects its “ideal user”; not all technology will work for all people equally well all the time
- Technology that embraces self-disclosure as a qualities makes visible the ways in which it effects
  - Users can become aware of what technology makes of them
  - Creates a critical distance between users and interactions
  - Allows users to (re-)define themselves for the technology


CRITICAL THEORY AND
INTERACTION DESIGN
EDITED BY
Jeffrey Bardzell, Shaowen Bardzell,
and Mark Blythe


Data
Feminism
Catherine D'Ignazio and
Lauren F. Klein

Next steps

- Tutorials have ended; no tutorials in Week 11
- Week 10 lecture
  - CW2 clinic
  - Bring your questions
  - Receive feedback
  - Highlight to us any topics/techniques you would like to (re)visit

Any questions?