

# Interactions

A hotel booking platform leveraging commercially justified, yet deeply exploitative dark pattern strategies to maximize user retention, upsell conversion, and data extraction

## 1. Entering the Platform - Sal 12 April

### Interaction

Users are required to engage with a cookie consent interface before accessing the site.

### Type of dark patterns

Preselection + Trick wording + Obstruction + Sneaking + Visual interference

### Presentation

- Upon first arrival, users are presented with a cookie banner containing a single stand-out button labeled “Accept All”, accompanied by a less obvious link titled “Manage Preferences.”
- The “Manage Preferences” panel contains hidden dropdowns for each category of cookies: essential, analytical, advertising, and personalization. All categories are preselected by default.
- The “Deny All” button appears to offer full opt-out functionality. However, several cookie subcategories such as third-party tracking and behavioral retargeting remain enabled unless individually unchecked in concealed submenus.
- Labels are ambiguous and designed to discourage opt-out. Toggle text includes:
  - *“Deactivate advanced personalization mechanisms (not recommended)”*
  - *“Disable engagement optimization features (may reduce functionality)”*
- The “Save Preferences” button is presented in a neutral style, while “Continue with Recommendations” stands out in placement and appearance.
- Users who attempt to proceed without making a selection are re-prompted with full-screen overlays after several interactions.

## 2. Searching for Rooms - Marquis

### Interaction

Users must complete a detailed form before initiating a room search.

### **Type of dark patterns**

Confirm shaming + Forced action + Obstruction + Nagging

### **Presentation**

- Users are required to provide full travel details. This includes, but is not limited to:
  - Full travel itinerary (flight numbers, estimated arrival date/time, passport number)
  - Daily schedule (restaurant or entertainment reservations) - text box (to help better customize the trip)
  - A brief explanation of the reason for travel
- The interface justifies this step as essential for minimizing cancellations and supporting smaller hosts. [guilt inducing]
  - “We are a family-run business. Each cancelled booking affects our livelihood. (Please! ~ something along the lines of)”
- Optional fields are labeled as strongly recommended. However, if left blank, they trigger repeated prompts.
  - The two attempts to skip or postpone filling the form are blocked by the same pop-ups reminding users of their “incomplete submission.” Dismissing the pop-up(twice), and subsequently clicking the next section will allow the user to advance to the browsing result page.
- Click the ‘browse’ button for the next section; this button is smaller, and requires scrolling to reach - it's under the next button, which is objectively bigger and colored in as to draw attention for the next steps after completing the form. Clicking the browse button will circumvent the pop-ups and lead to the next page. The browse button is simply labeled in text and does not have a box around it, simply just “Continue Browsing ->” - this is seen as the ‘right’ answer for this page, and adds a +1 score.

## **3. Browsing Results - Marquis**

### **Interaction**

Users view ranked hotel listings.

### **Type of dark patterns**

Disguised ads + Visual interference + Fake social proof + Fake scarcity + Sneaking

## Presentation

- Sponsored listings are presented at the top of the search results and are formatted to resemble organic listings.
- Promotional badges use language like “Top Pick” or “Editor’s Choice” without clear indication of paid placement.
- Notifications such as “Booked 17 times today” or “Only 1 room left” appear regardless of actual availability.
- The majority of reviews displayed are AI-generated placeholders containing vague and repetitive praise, such as “Amazing stay,” “Truly excellent,” and “Highly recommend.” One unintentional exception is an encrypted authentic review that reads: “**R**eally great place. **U**nforgettable experience. **N**ever regret staying.”

## 4a. Reviewing Listings - Ariel

### Interaction

Users navigate hotel pages and room details.

### Type of dark patterns

Comparison prevention + Trick wording

## Presentation

- Key details about hotel rooms are deliberately vague or misleading. Examples include:
  - Nightly rates are broken down into multiple abstract fees such as: “*Base Rate*,” “*Facilities Stabilization Cost*,” “*Hospitality Management Fee*,” and “*Experience Adjustment Levy*.” These appear as individual line items, making it difficult to determine the true total cost.
  - Essential information such as # of bathrooms, beds, or included amenities is either missing or phrased in an ambiguous way.
    - Facilities like minibars are vaguely described, leaving out whether consuming anything incurs additional costs. E.g., “Hydration consumption units include pre-curated selections subject to deferred cost application.”
    - Some rooms have bathtubs, but the site does not specify whether their use requires an extra fee.
- Room tiers are convoluted, filled with buzzwords like “premium,” “suite,” and “executive.”

- Rooms are not presented with standardized formats. Premium rooms include clear, appealing photos, while standard or discounted rooms use cropped or low-quality images.

## **4b. Selecting a Room - Ariel**

### **Interaction**

Users select a room before proceeding to checkout.

### **Type of dark patterns**

Preselection + Visual interference + Confirm shaming + Untranslation

### **Presentation**

- The system automatically selects the most expensive room package. Users who don't carefully inspect their selections may unknowingly pay for unnecessary add-ons, like spa packages or airport transfers.
- Downgrading requires opening a drop-down or tab containing alternative rooms, which are listed far below the fold.
- While premium suites are displayed front and center, the cheaper rooms are buried dozens of scrolls below. Even when users scroll down, blurry images and vague descriptions make these options seem undesirable.
- Crucial booking details, such as cancellation policies, additional fees, and refund conditions, are displayed in a different language than the one used for the rest of the site.
  - E.g., A user browsing in English might see: "Non-refundable" translated as "Non restituibile" (Italian) or "不可退款" (Chinese), without an English version provided. Meanwhile, misleadingly simple translations make complex fees sound harmless, such as: "Cleaning Fee" appearing as "Petite maintenance charge" in French.

## **5a. Checkout Process - Bhoomika**

### **Interaction**

Users are shown a summary of additional services before payment.

### **Type of dark patterns**

Confirm shaming + Preselection + Sneaking + Visual interference + Obstruction + Trick wording + Alphabet soup

### **Presentation**

- All room bookings are bundled by default with additional services, such as “Flexible Cancellation,” “Complimentary Breakfast,” and “24-hour Change Support.”
- Opting out of these services triggers notifications, such as:
  - *“Removing flexible cancellation will result in full loss in case of emergency. Proceed only if you are fully certain.”*
  - *“Breakfast not selected. Please ensure you have made alternative arrangements for morning nutrition.”*
- The interface design prioritizes confirmation of upgrades with large, high-contrast buttons. In contrast, downgrade options are visually minimized and contain messages such as “Continue without benefits,” or “I will take the risk.”

## 5b. Final Payment - Bhoomika

### Interaction

Users finalize their payment after reviewing the full cost breakdown.

### Type of dark patterns

Hidden costs + Sneaking + Obstruction + Trick wording

### Presentation

- Prices displayed in search results reflect only a fraction of the actual cost. Mandatory surcharges are introduced during checkout in small-font summaries or collapsed sections:
  - Window fee — for rooms with *\*any\** widow, e.g., fake window, atrium-view
  - Air circulation charge — a per-day surcharge tied to HVAC usage
  - Bed setup fee — a compulsory preparation fee, with optional add-ons for pillows and linens, and turndown service
  - Quiet hours surcharge — presented as a premium for noise management, but *\*not guaranteed\**
  - Resort / Urban destination fee — covers pool, gym, Wi-Fi, newspapers, even if you don’t use them; fancy alternative for city hotels
  - Safe fee — for having a safe in the room, even if you don’t use it.
- These fees are introduced late in the funnel, when user commitment is highest, reducing the likelihood of cancellation.
- Each fee is listed separately and justified with euphemistic language, like “enhancing your stay experience.”
- Room prices are listed as “€19.99 ≈ 0.73 NGP / 4.3 🍷 units,” with no

explanation of what “NGP” or moon emojis represent. A tiny tooltip appears on hover, reading: “Subject to planetary alignment.”

- Acronyms like “RAT,” “HSTC,” and “EEFE” are scattered through the checkout summary, presented as critical fees, but none are defined. Unchecking one simply greys out the rest.
- The final bill appears to be a math puzzle:
  - “Subtotal:  $17.5B + (12\% \text{ WAF} \times 2.3 \text{ JRS}) - 1 \text{ LoveToken}$ ,” daring users to decode the actual cost before confirming.

## 6. Reservation Confirmation - Bhoomika

### Interaction

Users are prompted to confirm promotional and membership enrollment.

### Type of dark patterns

Visual interference + Confirm shaming + Preselection + Sneaking + Forced action + Hidden subscription

### Presentation

- Upon completing a reservation, users are redirected to a “Welcome & Confirmation” screen with celebratory messaging such as:
  - “Congratulations—Your Stay Is Confirmed!”
  - “You’ve Been Selected for Silver Guest Tier Enrollment.”
- At the center of the page, a large green button labeled “Activate My Guest Benefits” is presented as the default next step. It combines enrollment in the marketing email list and automatic registration into the “Preferred Guest Loyalty Program.”
- The promotional copy emphasizes exclusivity and urgency:
  - *“Includes early check-in opportunities, exclusive rate alerts, and special recognition at check-in. Why miss out?”*
- The opt-out pathway is deprioritized both visually and structurally:
  - A low-contrast, unlabeled checkbox at the bottom of the page, pre-selected by default, reads:
    - *“Enroll me in the Preferred Guest Loyalty Program and agree to receive promotional communications.”*
- The only alternative option, labeled “Decline Benefits,” is styled as a secondary link with small text, placed well below the fold and grouped under a collapsible menu titled “Other Options.”

- If the user attempts to uncheck the box or click *“Decline Benefits,”* a modal window appears with a cautionary message:
  - *“Most guests choose to enjoy their stay with full benefits. Declining may result in missed upgrades and reduced booking flexibility. Are you sure?”*

## 7. Attempting to Unsubscribe or Cancel Membership - Bhoomika

### Interaction

Users try to manage communication and subscription preferences after booking.

### Type of dark patterns

Hard to cancel + Trick wording + Obstruction + Hidden subscription + Nagging + Linguistic dead-end (Untranslation)

### Presentation

- The option to unsubscribe from marketing emails is buried in the account preferences section, under a tab labeled *“Communications Engagement.”*
- Users are presented with a multi-option form asking them to *“Refine your notification journey”* rather than opt out directly.
- The unsubscribe option is framed through progressively complex negative constructions, requiring high cognitive effort and increasing the risk of misinterpretation. For example:
  - **Double negative**  
*“Uncheck this box if you do not wish to stop receiving promotional content.”*  
*(Leaving it checked means you will stop the opt-out process.)*
  - **Triple negative**  
*“By not selecting this option, you agree not to decline further promotional messages.”*  
*(Inaction implies consent to continued marketing.)*
  - **Quadruple negative**  
*“If you don’t uncheck the box below, we will assume you don’t intend to opt out of not receiving updates.”*  
*(The default state of the checkbox keeps you enrolled, and only careful parsing reveals the action needed to unsubscribe.)*
- Additional confirmation pop-ups [confirmshaming]:
  - *“Are you sure you want to stop receiving exclusive benefits? You may miss out on time-sensitive partner offers.”*

- *“By leaving this unchecked, you confirm that you do not decline continued acceptance of non-transactional communications.”*
- The final “Save Preferences” button remains inactive unless the user scrolls through the entire legal disclaimer titled *“Subscriber Content Assurance Protocol.”*

## **8. Implementation of Final Report and Scoring System - Bhoomika**

Scoring rules:

Page 1 Scoring

The floating (and slippery) consent popup will auto-dismiss after 10 seconds. If you manage to uncheck the box before that, you gain 2 point. If not, your gain 0 points. (line 164)

Cookies Popup: if you click the X or “Accept All” then you gain zero points. If you click “Manage Preferences” you gain 5 points (line 204)

If you click “Next Step” before responding to the cookies popup, you gain zero points (line 186)

Page 2:

If all required fields (arrival date, departure date, number of guests) are filled:

- Clicking Next button should give +5 points
- The modal prompts should still appear twice if recommended fields are empty

If ANY required fields are empty:

- Clicking Next button should still prompt confirmation twice
- Give +7 points

If any strongly recommended fields are filled out (in addition to required fields):

- Clicking Next button should highlight that the dark pattern was not identified and not add to the score of the player.
- Modal prompts will still appear twice if other recommended fields are empty

“Continue Browsing” button:

- Always gives +10
- Bypasses modal prompts

The date functionality (saving arrival/departure dates) Works with both buttons.

Page 3:

Selecting the standard hotel with no flashy signs and best ratings is gets a +3 but selecting any of the other 2 gives a zero.

Page 4:

All rooms cost the same after totaling all the different fees. The most features are offered with the executive rooms, followed by the deluxe rooms. Users should get the most points for selecting the executive room, followed by deluxe and executive. So maybe they only receive points if they select the executive room, otherwise they do not get points and it gets highlighted as such in their report.

Page 5:



When the user unchecks 1 or 2 of the 3 pre checked boxes before clicking on confirm and pay then they get +4 score. However, if they uncheck all 3 then they get + 6 score.

If they click on the drop down to check the payment details they get +3 score. If they hover over the subtotal to see even 1 one of the tooltips to see the dollar/value of the price mentioned they get a +2 score.

Page 6:

If they fill in any of the additional details (not required fields which are first name, last name and email address). They get a zero score, else they get a +3. If they make sure to uncheck even 1 of the 2 pre checked checkboxes then they get a +2. They hover over the price breakdown to get the dollar values of the same

# Literature

## 16 Types of Dark Patterns (non-exhaustive)

16 types of dark patterns: <https://www.deceptive.design/types>

\*related literature in *reading list* on said website 

Comparison prevention	The user struggles to compare products because features and prices are combined in a complex manner, or because essential information is hard to find.
Confirmshaming	The user is emotionally manipulated into doing something that they would not otherwise have done.
Disguised ads	The user mistakenly believes they are clicking on an interface element or native content, but it's actually a disguised advertisement.
Fake scarcity	The user is pressured into completing an action because they are presented with a fake indication of limited supply or popularity.
Fake social proof	The user is misled into believing a product is more popular or credible than it really is, because they were shown fake reviews, testimonials, or activity messages.
Fake urgency	The user is pressured into completing an action because they are presented with a fake time limitation.
Forced Action	The user wants to do something, but they are required to do something else undesirable in return.
Hard to cancel	The user finds it easy to sign up or subscribe, but when they want to cancel they find it very hard.
Hidden costs	The user is enticed with a low advertised price. After investing time and effort, they discover unexpected fees and charges when they reach the checkout.
Hidden subscription	The user is unknowingly enrolled in a recurring subscription or payment plan without clear disclosure or their explicit consent.
Nagging	The user tries to do something, but they are persistently interrupted by requests to do something else that may not be in their best interests.
Obstruction	The user is faced with barriers or hurdles, making it hard for them to complete their task or access information.

Preselection	The user is presented with a default option that has already been selected for them, in order to influence their decision-making.
Sneaking	The user is drawn into a transaction on false pretences, because pertinent information is hidden or delayed from being presented to them.
Trick wording	The user is misled into taking an action, due to the presentation of confusing or misleading language.
Visual Interferences	The user expects to see information presented in a clear and predictable way on the page, but it is hidden, obscured or disguised.

## Linguistic dead-ends

<https://www.titech.ac.jp/english/news/2023/067510>

The researchers found that a significant majority of these apps contained DPs, with an average of around 3.9 deceptive design elements per app. They classified these patterns into six classes. While five of these classes were drawn from an established taxonomy of DPs by *De Geronimo et al. (2020)*, one was newly discovered in this work: a novel class of DP termed 'Linguistic Dead-Ends'. It comprises two distinct subclasses:

**'Untranslation'** and **'Alphabet Soup'** (shown in Figures 1 and 2, respectively).

Research mentioned: <https://dl.acm.org/doi/fullHtml/10.1145/3313831.3376600>

Dr. Seaborn explains, "s, even while the rest of the app is in perfect Japanese. For instance, key information may be presented in another language while the rest of the app is in the local language, or characters from the local syllabary are used to construct words that seem legitimate but do not make sense on closer inspection."

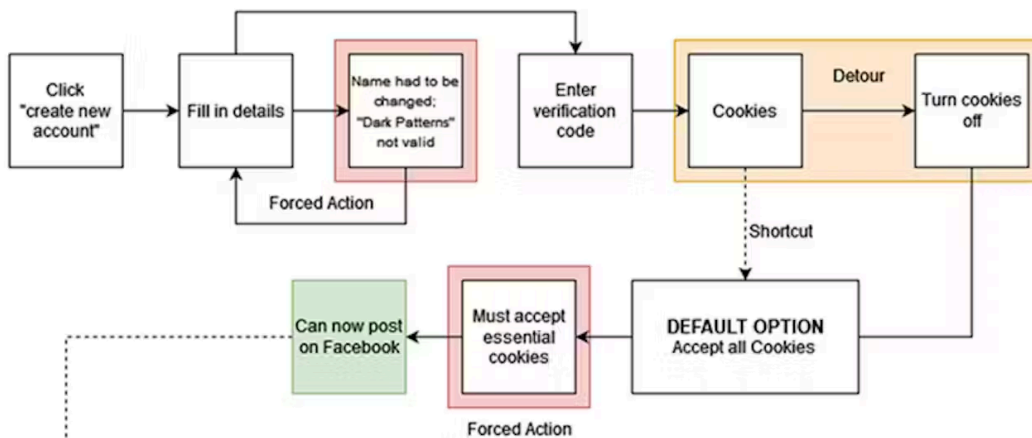
## Choice architecture

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1066524/Online\\_choice\\_architecture\\_discussion\\_paper.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1066524/Online_choice_architecture_discussion_paper.pdf)

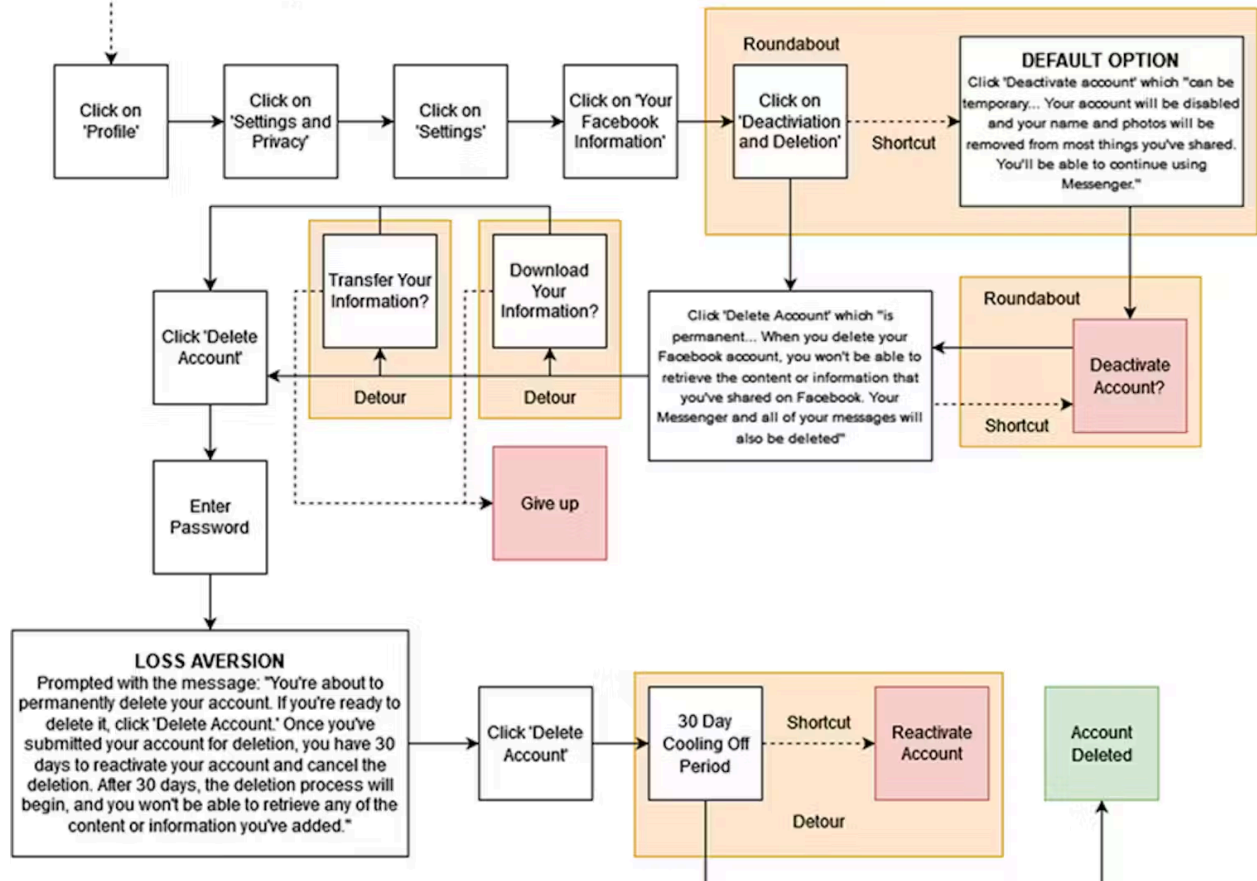
## Interaction Flowchart

<https://theconversation.com/dark-patterns-how-online-companies-strive-to-keep-your-money-and-data-when-you-try-to-leave-201620>

## Creating a Facebook Account



## Deleting a Facebook Account



## Preselection/Dark Nudge

<https://www.pnas.org/doi/10.1073/pnas.2218385120>

When presenting choices to people, designers sometimes **precheck one option** such as a shipping speed, choice to be an organ donor, or retirement savings contribution size, **to nudge them toward choosing that option**. We examine the effects of prechecking a recurring donation box on eight political campaign websites, showing that these prechecked boxes increase campaign donations by over 40 million dollars and increase donors' requests for refunds. Our results suggest, in contrast to previous work, that defaults can sometimes cause people to make decisions by accident that they may later regret. Recently, policymakers in many countries have considered or implemented bans on prechecked boxes in some contexts, including in this specific political donations context.

## Experiment: false hierarchy (visual interference)

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4547964](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4547964)

**False hierarchy** is a visual interference with the reject option shown less prominently making it less obvious to the user (compared to the red background in the neutral offer shown to the control group). The aim is to intentionally steer users away from certain choices by making them feel that less-visible options are unavailable or disabled (Mathur et al., 2019).

## Case: Browser Selection

<https://research.mozilla.org/browser-competition/choicescreen/>

Overall, we find that **a well-designed choice screen - with key information about each browser and a wide range of browsers - shown during set-up at first use of a device has benefits**: it enables people to select their default easily, increases browser contestability, aligns with people's preferences, increases satisfaction and does not have the downsides that some have been concerned about.

## Case: Finance

[https://link.springer.com/chapter/10.1007/978-3-031-42280-5\\_20](https://link.springer.com/chapter/10.1007/978-3-031-42280-5_20)

Forced Registration → Forced Action

Hidden Information → Sneaking + Visual Inference

False Hierarchy → Visual Inference

Hidden Costs

Additional Costs → Trick Wording

Intermediate Currency → Alphabet Soup

Bad Defaults → Preselection

Forced Continuity → Forced Action

Gamification: increases users' commitment through engaging tasks and rewards, leading them to invest more time, effort, and ultimately money into the platform

Social Proof: not necessarily fake, ^using public conception to increase trustworthiness

Disguised Ads

Aesthetic Manipulation → Visual Inference

## Case: Virtual Assistant

<https://www.sciencedirect.com/science/article/pii/S0267364923000766?via%3Dihub>

- **Nagging:** Repeatedly interrupting users with prompts or requests to pressure them into taking an action.
  - **Example:** A virtual assistant frequently suggesting unrelated commands ("By the way, you can now ask me to turn off the lights") or repeatedly insisting users register for services before proceeding.
- **Privacy Zuckering:** Manipulating users into sharing more personal data than intended.
  - **Example:** VAs prompting engagement by suggesting trending topics or emitting notification beeps unprompted, leading users to provide more information by interacting more frequently. [Forced Action]
- **Disguised Advertising:** Presenting sponsored content as neutral suggestions or user-driven recommendations.
  - **Example:** When users ask a VA generically ("I want to buy a food processor"), the VA responds with "Producer's choice" items without clearly stating if these suggestions are paid promotions.
- **Misdirection:** Deliberately steering users toward specific actions or choices by manipulating language or context.
  - **Example:** VA deflecting direct requests ("What time is it?") by suggesting alternative actions ("Would you also like to open your notifications?") or offering unrelated apps to download.
- **Price Comparison Prevention:** Organizing or presenting information to hinder effective price comparisons.
  - **Example:** Virtual assistants verbally presenting products individually, omitting details like unit pricing, thereby obstructing users' ability to compare prices efficiently.
- **Roach Motel:** Allowing easy registration but complicating cancellation or unsubscribing processes. [Hard to cancel]

- **Example:** Users can subscribe to services by voice command, yet VAs instruct them to use external apps or websites to unsubscribe, creating friction and discouraging cancellation.

## Case: LLM-Based Conversational Agents

<https://dl.acm.org/doi/10.1145/3613904.3642385>

\*This website also has a very interesting design that you cannot easily tell if you successfully deselect cookies.

- Users disclosed personal data primarily when benefits, emotional support, or convenience outweighed privacy concerns.
- Disclosure factors included:
  - CA's perceived capability and operational convenience.
  - Personal sensitivity assessments of data.
  - Resignation about existing public data availability.
  - Risks of misuse, social repercussions, and intellectual property concerns.
- Privacy trade-off strategies:
  - Accepting risks for critical benefits.
  - Avoiding tasks involving sensitive information.
  - Manually sanitizing or falsifying inputs.
- Mental models of LLM operations were often flawed, leading users to underestimate memorization and data reuse risks.
  - Limited concern due to perceived abstraction, anonymity, or lack of prior leaks experience.
- Privacy controls faced low adoption due to:
  - Poor user awareness.
  - Intentional dark patterns (e.g., mandatory disabling of conversation history, hidden opt-out forms).
- Users recommended:
  - More transparent, discoverable privacy settings.
  - Granular controls similar to browser incognito modes.

# 5/1/2025 Changes

## Remaining bugs

- Note: Book Now button on each page takes users to a 404 error

## Page 1

- Remove links from header
- Remove Contact link from footer
- Reduce score if “next” before denying cookies
- 

## Page 2

- Remove “strongly recommended”
- Maybe? remove “continue browsing” button (undecided)
- Do not detract points for providing dates and number of guests

## Scoring:

## Page 3

- (Reach goal) Animate 25% off tags to catch attention

## Page 4 (applies to all 3 hotels)

- Change “base rates” to match previous page prices
- Add PT header above page-specific header
- Add more foreign languages into the fees section
- (Reach goal) Reveal image caption on hover and add 1 point for that
- All prices are now the same One option should be the best (either the most features, or the least fine print, or other creative option for this)
  - Bhoomika’s 2 options: either all prices need to be the same or all features need to be the same

## Page 5:

- Increase prices (don’t worry about matching them perfectly to previous page)
- Remove “stressful mornings”
- Remove “planetary alignment” (change to “unforeseeable acts of god”?)
- Maybe? Make price breakdown hidden by default until clicked to expand
- Hover over LoveTokens to change it to USD or Euros
- Make it one button to progress instead of 3

## Page 6 — Payment Page TBD — some ideas

- Request even more info! Ask for email to subscribe to newsletter
- “Log in” or check out as Guest
- Pre-checked boxes for other invasive bullshit