CCPA Opt-Out Icon Testing – Phase 2

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Executive Summary

Following our prior user studies on the effectiveness of icons and link texts for the CCPA do not sell opt-out button [1,2] , we tested the following set of candidate icons proposed by the California Attorney General's office (OAG) with a demographically-diverse sample of 1,002 California residents. We explored which of these icons, paired with the "Do Not Sell My Personal Information" link text, would perform best in (1) standing out to users on a website; (2) communicating the presence of a do-not-sell choice; and (3) motivating users to click. We also included a control condition (*None*) in which just the text link was shown to participants, to explore whether the presence of an icon had an impact.

Figure 1: Icon conditions tested in our study.

Based on the results of the test we make the following recommendations:

None of the tested icons should be used to symbolize Do Not Sell. Instead, the link text should be used on its own or different icons should be developed and tested. Our analysis of the icon's ability to communicate "Do Not Sell" indicates that showing the link text without any icon resulted in the highest percentage (64%) of correct expectations of what would happen when it is clicked - i.e., being presented with information or choices related to do-not-sell. When the link text was paired with any of the four icons, the percentage of correct expectations was lower, between 56% to 59% (Section 3.2.1). This means that adding any of these icons to the link text introduced misconceptions regarding the opt-out button's purpose compared to presenting the link text on its own. Additionally, none of the four icons were rated particularly well by participants as conveying "there is an option to tell a website 'do not sell my personal information'" (Sec. 3.3).

Our study shows that adding an icon did increase users' attention (Sec. 3.1) but did not create a significantly higher motivation to click (Sec. 3.4.1). If an icon is to be used, there might be better icon designs beyond those tested here that may generate correct expectations of the opt-out button's purpose. For instance, in our previous reports [1,2] we showed that a blue stylized toggle icon effectively communicates the presence of a choice; when paired with the "Do Not Sell My Personal Information" link text, it helps people recognize that the choice is related to the sale of personal information without creating substantial misconceptions (Sec 3.6). However,

further testing is needed to determine whether this or other alternative icons would stand out on a website or motivate users to click.

Public education is needed to raise awareness and dispel misconceptions. It is important to note that regardless of whether and which icon is adopted, consumers should be educated about the existence of the do-not-sell opt-out, how it is represented on websites, and where to find it on websites. Furthermore, it is important to educate consumers about the purpose of the opt-out button and what to expect when they click it. Our participants reported that candidate icons conveyed a variety of concepts other than "do not sell my personal information," for example, sales, money, and payment (Table 3). Clarifying that the icon/link would lead to actual controls to stop the website/company from selling the consumer's personal information is also helpful for persons who are unmotivated to click because they are unfamiliar with the icon and thus question its legitimacy (Sec. 3.4.3).

1. Introduction

In February 2020, we submitted a report to the OAG that documents our user research on the effectiveness of different icon and tagline (or link text) combinations for communicating the presence of Do-Not-Sell choices [1]. This choice is required to be made available to California consumers under the California Consumer Privacy Act (CCPA). Our recommendations inspired the proposed do-not-sell opt-out button in the OAG's February 10, 2020 Revised Proposed Regulations (§ 999.306.f) [3], which was similar to, but not exactly like, the blue toggle icon we had recommended [1]. In a follow-up report [2], we presented empirical evidence showing that the OAG's proposed toggle icon was often misinterpreted as an actual toggle control, and did not effectively convey a do-not-sell choice. In light of these findings, the OAG removed the opt-out button from the March 11, 2020 Revised Proposed Regulations, leaving the requirement to include the "Do Not Sell My Personal Information" link text [4].

At the request of the OAG, we conducted a follow-up experiment to evaluate four icon designs proposed by the OAG (shown in Figure 1) and compare them with a control condition in which the "Do Not Sell My Personal Information" link text is displayed without an icon. The OAG's icons are closely based on icon designs developed and evaluated in our prior studies [1,2].

The experiment discussed in this report aims to answer the following three questions for each of the candidate icons provided by the OAG, using a similar methodology as in our previous studies [1,2]

1. Does this icon, when coupled with the link text, stand out to consumers on a website? *(attention)*
2. Does the icon, when coupled with the link text, indicate "Do Not Sell My Information"? *(communication of "Do Not Sell")*
3. Does this icon, when coupled with the link text, motivate consumers to take action/click? *(intention to click)*

2. Methodology

We conducted an online study using the Qualtrics survey tool with 1,002 demographically-diverse California residents recruited on Amazon Mechanical Turk.[1] Each participant was shown the front page of a website for a fictitious online shoe retailer that included the "Do Not Sell My Personal Information" link text near the bottom of the page. Participants were randomly assigned to one of five conditions, in which one of the four candidate icons or no icon was placed to the left of the link text.

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[1] See https://www.mturk.com/

2.1 Evaluation Method

The study consisted of the following four parts, presented in the following order: the first three parts included questions evaluating participants' attention, intention to click, and each icon's ability to communicate the "do not sell" concept; the fourth part captured participants' opinions on all four icons.[2] The study concluded with questions about participants' familiarity with CCPA and demographic information. We adopted similar questions as in our previous testing [1,2], with new questions that aim to gauge participants' attention to and intention to click on the icon.

2.1.1 Attention

Participants were shown a screenshot of a fictitious shoe retailer website called "Footwear," with the icon and link text placed in the footer under the link to the website's privacy policy, to mimic the way users are likely to encounter a CCPA opt-out in the real world (see Figure 2).

Participants were first asked: "Imagine you were shopping at this online store and you wanted to know whether you could have a pair of shoes shipped to you overnight. Do you see a link you could click to find out?" Participants who said "yes" were prompted to describe the link. The correct answer, "Delivery Information," was placed two lines above the "Do Not Sell My Personal Information" link[3]. In this way, we directed participants' attention to the bottom right of the page without priming them to actively look for the do-not-sell icon and link.

Next, we hid the screenshot and asked participants: "Imagine you were shopping at this online store, and you were concerned about the store selling your personal information. Do you remember seeing any feature in the screenshot that you could use to prevent this from happening?" Participants who said "yes" were prompted to describe the feature. This question was designed to determine whether the link text on its own or in combination with an icon stands out enough to attract the attention of website visitors who are reviewing the website footer, but not specifically looking for this link. We analyzed each response to see whether the participant correctly described at least one of the following: the icon (e.g., "a red symbol"), the link text (e.g., "do not sell my personal information" or similar phrases such as "do not sell my info"), or the icon/link text location (e.g., "a line of text on the lower right side of the screen").

Finally, we showed the screenshot again and asked participants the same question and follow-up. This question was designed to determine whether participants were able to locate the do-not-sell icon and link text when given explicit instructions.

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[2] The full set of survey questions for this study are included in Appendix A.

[3] Arguably, other answers such as "Contact" might offer valid ways of determining the availability of overnight shipping. However, we focus on participants who included "delivery" in their response to ensure participants were looking at the bottom right corner of the page.
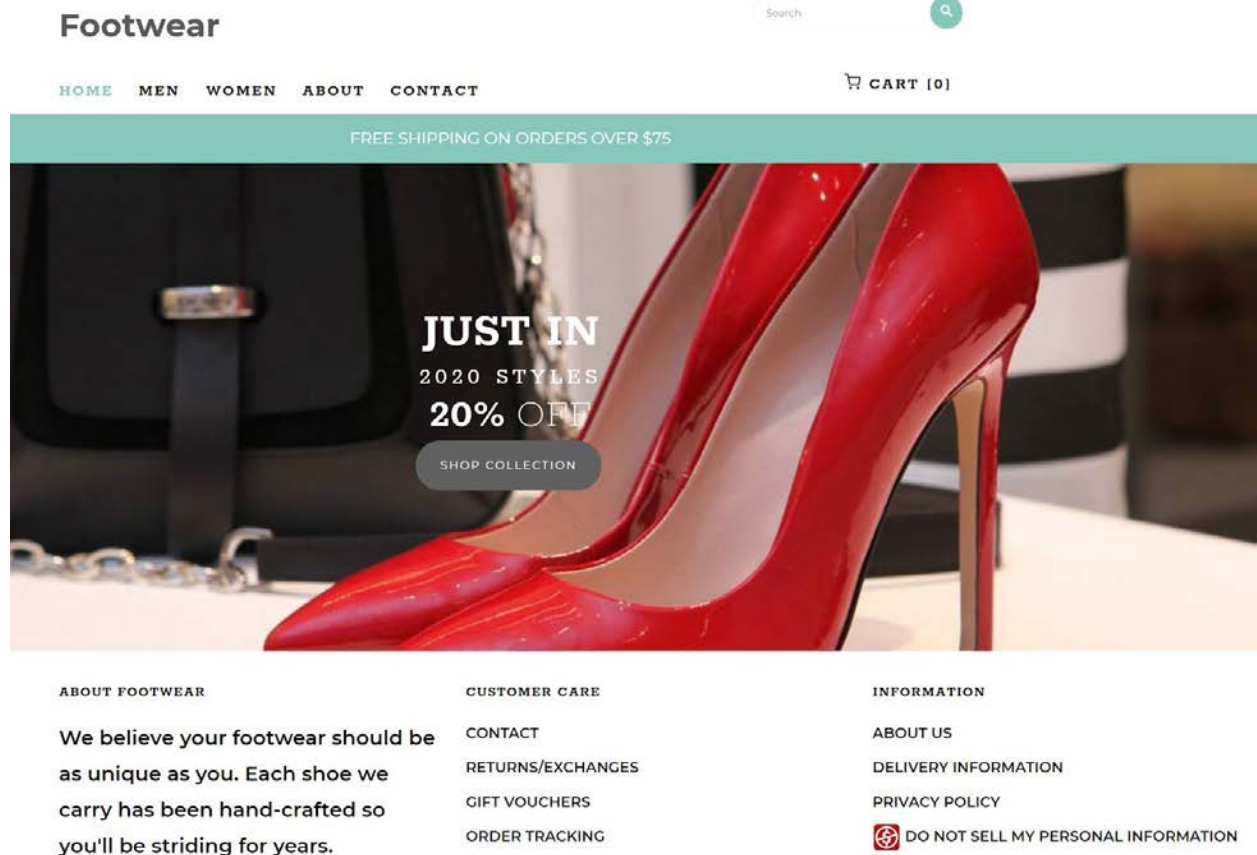
Figure 2: Screenshot of what participants assigned to the condition "DoNot" saw within the survey platform Qualtrics.

2.1.2 Intention to Click

We showed participants the screenshot again, this time with an orange box around the icon and link text, as well as a close-up of just the icon and link text, to ensure that all participants focused on the correct opt-out button/link. We asked participants to imagine this was the first time that they noticed this icon and link text on this or any other website, and to report whether they would "definitely not," "probably not," "not sure," "probably," or "definitely" click on the icon and link text. We emphasized "this or any other website" to ensure their responses were not too constrained to this specific shoe website, but instead applicable to other types of websites as well. We then asked them to describe why they selected a particular answer option to better understand their reasons for clicking and not clicking.

2.1.3 Communication of "Do Not Sell"

We asked participants to describe their expectations of what would happen if they clicked on the icon and link text shown in the orange box on the website screenshot. After that, we asked them

to rate the likelihood regarding each of eight specific scenarios about what might happen if they click the link. These scenarios were based on open-ended responses provided by participants in our previous studies [1,2]. Three of these scenarios were accurate expectations related to do-not-sell - i.e., after clicking, the user would be taken to a page where they could choose whether or not the website can sell their personal information, confirm that they do not want their personal information to be sold, or read more information about how the website uses and shares their personal information. The other scenarios were various potential misconceptions - i.e., after clicking the user would be taken to ads about privacy and security products, sales/discounts/free stuff, payment options, or the clicking would give the website permission to sell their personal information or cause the website to send unwanted emails. For each scenario, we asked participants to indicate whether it is "definitely not," "probably not," "not sure," "probably," or "definitely" going to happen.

2.1.4 Icon Preferences

After answering questions for just one icon (or link text without an icon), participants were shown all four candidate icons in randomized order. For each icon, they were asked to rate how well the icon conveys that there is an option to tell a website "do not sell my personal information," with choices "I don't know," "not at all," "slightly," "moderately," "very well," or "extremely well." They were then asked to explain the rationale behind each rating. By doing this, we provided participants an opportunity to elaborate on their opinion on design elements within each icon, as well as compare different icons.

2.2 Participants

We launched the study in April 2020 on Amazon Mechanical Turk (MTurk). MTurk is a crowdsourcing platform used by many academic researchers for recruiting participants, and prior research has shown that MTurk is a reliable data source for understanding people' security and privacy knowledge and experiences [5]. Participants who were 18 years old or older, have completed more than 500 assignments on MTurk,[4] with a 95% or higher approval rate were eligible to take our study. Additionally, at the request of the OAG, we used MTurk's U.S. region targeting feature to exclusively recruit participants who lived in California according to their MTurk profiles. Because some participants' current residence might be different from what they reported to MTurk (e.g., when they moved to a different state), we also asked participants in which state they currently reside, and we only included those who reported living in California in our data analysis. Participants were compensated $2.50 for completing the study which took 5 to 15 minutes to complete (mean: 11.7 minutes, median: 10.0 minutes, standard deviation: 6.6), in line with California's minimum wage ($12/hour). Compensation to participants was funded by the OAG.

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[4] Due to the limited number of eligible participants, we lowered the requirement to "number of completed HITs > 100" after the first 409 participants, and further dropped the number of completed HITs requirement after the first 763 participants.

After removing 192 participants who provided low quality responses (i.e., including nonsensical text to one or more open-ended questions) and 93 participants who provided reasonable responses but self-reported living outside of California, we analyzed the remaining 1,002 valid responses. Responses were almost evenly distributed across the five conditions (*DoNot*: 198, *Person*: 202, *PriceTag*: 201, *StopSign*: 201, *None*: 199).

The demographic information we collected indicates that our sample was fairly diverse, but not perfectly representative of California residents when compared to U.S. census data [6,7,8].[5] Compared to California's population, our participants were younger (63.6% were 25 to 44 years old, versus 28.6% for the CA population), more educated (69.0% having a Bachelor's/Associate's degree or above, versus 42.2% for the CA population), with a higher representation of men (50.4%, versus 49.7% for the CA population) and Asians (22.3%, versus 15.3% for the CA population). Our participants were distributed among the six California regions in roughly the same proportion as the California population; 20.7% of participants reported they had an education in, or worked in the field of computer science, computer engineering or information technology; 10.0% of participants reported that they were aware of a law in the U.S. that required companies to provide a "do not sell"option and explicitly mentioned the CCPA or California when asked to name or describe the law.

2.3 Data Analysis

Similar to our previous studies [1,2], we followed a systematic qualitative data analysis approach to categorize all open-ended responses provided by participants.[6] For likert questions regarding attention, intention to click, and expectations about specific scenarios, we ran binomial regression models on a binary variable of *likely* (including "definitely" and "probably") versus *unlikely* (including "not sure," "probably not," and "definitely not"), with the five icon conditions as the key independent variable and participants' demographics (age, gender, race, region within California, education, and technical background) as control variables. To ensure the regression models fit, we binned some demographic variables into fewer categories (e.g., for age we binned the original seven categories into three: "18 to 34 years," "35 to 54 years," and "55 years and over"). We also excluded categories with too few instances for all demographic variables (e.g., "other" and "prefer not to answer"). For ratings regarding each icon's ability to convey the "do-not-sell" concept, we conducted a Friedman test, followed by pairwise Wilcoxon signed rank test, to test whether rating distributions between different icon conditions were significantly different.

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[5] Detailed comparisons of the demographics of our study's participants vs. California's population are provided in Appendix B.
[6] Our codebooks for qualitative analysis are included in Appendix C.

3. Results

We found that the presence of an icon attracted attention to the do-not-sell link, with *PriceTag* and *StopSign* performing better than others. The presence of an icon however does not aid participants in forming more correct expectations of what happens when the opt-out button is clicked, but might instead evoke partially correct expectations or even misconceptions. None of the icons was ranked by participants as conveying a do-not-sell choice particularly well. Participants exhibited a high intention to click on the icon/link. Their intention to click was primarily driven by curiosity, whereas reasons for not wanting to click the button were dominated by not being concerned about privacy or a lack of familiarity with the icon. Table 1 summarizes our quantitative findings for each condition.

3.1 Attention

To understand how well each icon stands out on a website, we (1) asked participants to find the "Delivery Information" link to subtly direct their attention to the bottom right of the page, (2) hid the screenshot and tested whether participants noticed and could recall the do-not-sell icon and link, and (3) showed the screenshot and asked participants the same question to see whether the icon stands out under deliberate attention. We next present our results in the same order.

3.1.1 Less than Half Could Accurately Recall Seeing the Do-Not-Sell Icon/Link

With the screenshot provided, 75.4% of participants were able to identify the delivery information link by mentioning the word "delivery" when describing the link, with no significant differences between conditions. This indicates that our task successfully got most participants to pay attention to the bottom right corner of the screenshot, thus ensuring that they had a fair chance of noticing the do-not-sell icon and link text two lines below, without being primed to look for it.

Without the screenshot provided, **only 40.6% of participants could accurately recall the do-not-sell icon and link text, with notable differences between conditions** (see Figure 3). Interestingly, even for those participants who successfully identified the delivery information link, only 41.1% of them could accurately recall the do-not-sell icon and link text. This suggests that the icon and link were not salient enough to be noticed and remembered by the majority of participants, even when users' attention was deliberately directed to the nearby area of the web page.

Category	DoNot	Person	PriceTag	StopSign	None
Attention					
Successful recall	38%	40%	52% (** vs. None)	43% (* vs. None)	31%
Communication of "Do Not Sell"					
Likely: DNS confirmation (correct)	89%	89%	91%	89%	91%
Likely: DNS more info (correct)	79%	83%	87%	82%	86%
Likely: DNS choices (correct)	69%	66%	73% (** vs. Person)	67%	79% (* vs. Person)
Likely: privacy ads (incorrect)	33%	31%	23% (* vs. DoNot)	25%	25% (* vs. DoNot)
Likely: give selling permission (incorrect)	13%	13%	9%	12%	14%
Likely: receive unwanted emails (incorrect)	15%	12%	8%	12%	9%
Likely: payment options (incorrect)	14%	11%	6%	8%	8%
Likely: discounts (incorrect)	10%	6%	5%	7%	6%
Icon Preferences					
Mean score for conveying DNS choices (0 to 6, the higher the better)	2.41 (SD: 1.35)	2.27 (SD: 1.30)	1.60 (SD: 1.18)	1.81 (SD: 1.26)	N/A
Intention to Click					
Likely to click	65%	61%	66%	58%	60%

Table 1: Comparison of icons based on quantitative data analysis. . * denotes significance for statistical tests ("*" means $p < 0.05$, "**" means $p < 0.01$, "***" means $p < 0.001$). Icon preferences: DoNot and Person significantly more preferred than other icons in pairwise comparisons.

3.1.2 "PriceTag" and "StopSign" Performed the Best in Drawing Attention

The *PriceTag* icon performed the best in attracting participants' attention, with a 52% successful recall rate, whereas the *None* (no icon) condition performed the worst with only a 31% successful recall rate. The follow-up regression analysis showed that participants who were assigned to the *PriceTag* or *StopSign* icon were significantly more likely to accurately recall the do-not-sell icon and link text than those who did not see an icon (OR[7]=2.10, p=0.002; OR=1.74, p=0.02). Participants who saw the *DoNot* or *Person* icon were not significantly more likely to accurately recall the do-not-sell icon and link text than those who did not see an icon. We conclude that **PriceTag and StopSign icons stood out the most to participants and successfully increased attention to and recall of the icon and link text, while the other two icons did not**.

When the screenshot was visible, 90.2% of participants could accurately identify the do-not-sell icon and link text, with no significant differences between conditions. **This indicates that all candidate icons, as well as the link text without an icon, were easily located if participants deliberately looked for them.**

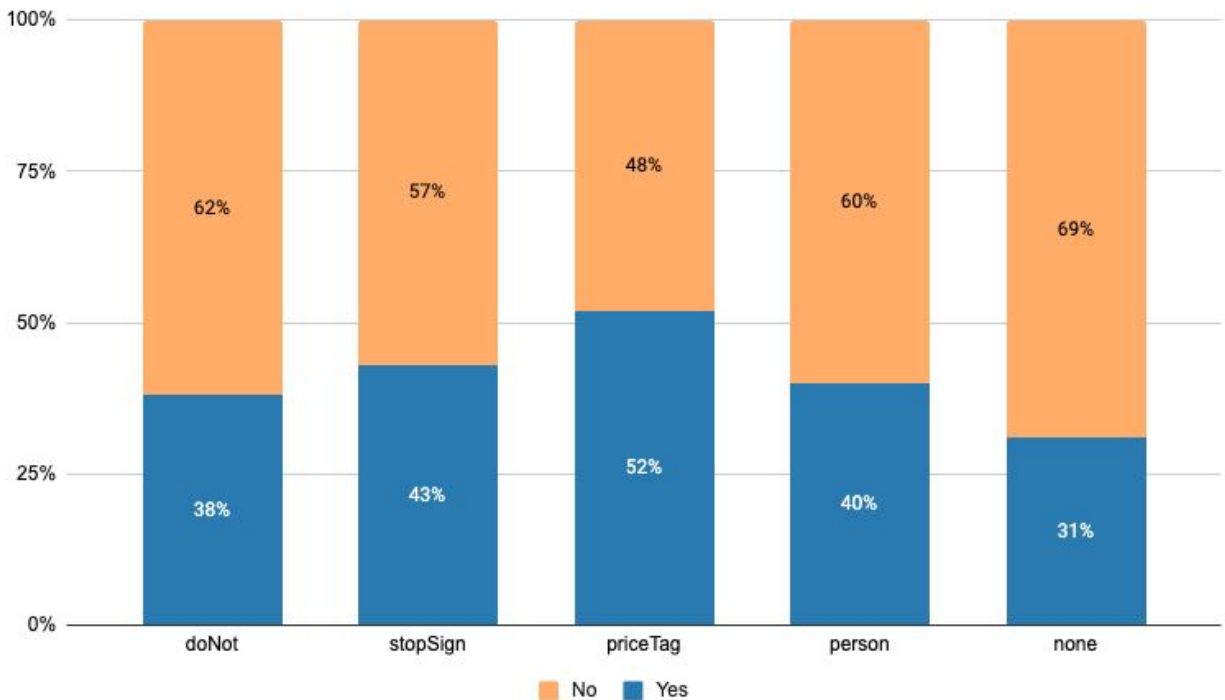*Figure 3: Percentage of participants who could accurately recall the do-not-sell icon and link without the screenshot in each icon condition.*

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[7] "OR" stands for "odds ratio" — we used odds ratio as the effect size for all binomial regression analysis. OR = 1.68, 3.47, and 6.71 are equivalent to Cohen's d = 0.2 (small), 0.5 (medium), and 0.8 (large) [9].

3.2 Communication of "Do Not Sell"

To understand how well each icon, when coupled with the link text, indicates the presence of choices related to "Do Not Sell My Personal Information," we first asked participants to describe what they expected to happen if they clicked on the icon/link that they were shown. We then presented a set of scenarios and asked participants to rate how likely they expected each to happen after clicking the icon/link.

3.2.1 Correct Expectations Related to Do-Not-Sell Are Common

We grouped participants' open-ended responses regarding what they expected to happen when clicking on the icon/link into three categories (correct, semi-correct, and incorrect) according to the possible interactions allowable under the CCPA. As seen in Figure 4, the distribution of responses was similar across the four conditions with an icon. Interestingly, only showing the link text without any icon resulted in notably more correct interpretations of what would happen after clicking the opt-out link (64%), i.e., those related to do-not-sell information and choices, and fewer partially correct interpretations (31%), i.e., privacy-related information, but not necessarily related to do-not-sell.

Figure 4: Distribution of participants' responses to the question "What do you think would happen if you clicked on the symbol and link in the highlighted area on this web page?"[8]

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[8] Responses that contained multiple expectations are categorized under their "less correct" interpretation. Responses categorized as "other" were those that were not classified as correct/semi/incorrect, i.e., responses that do not fit into our existing codebook, as well as responses including nonsensical text.

Correct expectations: participants' most frequent expectations were consistent with the button's intention. The most common expectation, reported by 23% (236) of participants, was that clicking the icon/link would bring them to a page with options about the sale of their personal information or a page where they could submit a request that the company not sell their information. Eleven percent (112) of participants further specified that they would need to provide further information to the company or submit a form in order to make a do-not-sell request. Another common expectation, reported by 17% (172) of participants, was that they would see more information about the company's do-not-sell policy or instructions on how to exercise the option. Not as common, yet still a correct possible implementation of do-not-sell, was the expectation that the user would be brought to a page where they would have to confirm their do-not-sell request, mentioned by 4% (42) of participants.

Semi-correct expectations: participants also reported expectations that demonstrated an understanding that the do-not-sell icon/link was related to privacy, but did not correspond to the CCPA regulations' requirements for this opt-out button. A common semi-correct expectation was that clicking the icon/link would immediately apply the do-not-sell request, as described by 11% (109) of participants. Another 12% (122) of participants stated the link would bring them to the company's privacy policy or information about the company's data practices. A subset of 81 participants (8%) thought the link would lead to information about privacy choices, or increase the level of privacy protection on the website in some way.

Incorrect expectations: much less frequently, participants' responses highlight misconceptions related to the do-not-sell choice. Twenty-three participants thought that the icon/link was a scam or would direct them to a malicious website. Another fourteen participants described that clicking the icon/link would lead to less privacy protection, such as enabling the website to sell their data. Eight participants expected to be brought to a page where they would have to pay in order to make a do-not-sell request to the company. Ten participants expressed doubt that the company would honor a do-not sell request, or thought that the company would make exercising such a choice excessively cumbersome.

The findings above were further corroborated by the likelihood ratings for the eight given scenarios. As seen in Figure 5, the three scenarios about correct expectations related to do-not-sell (seeing more information, making choices, or confirming a do-not-sell requests) were considered likely (including "probably" and "definitely") to happen by over 70% of participants, whereas the other five incorrect scenarios were not considered likely by very many participants. Notably, the expectation of being taken to a page "with ads about privacy and security products" was higher than the other incorrect scenarios, with 27% of participants stating it would "probably" or "definitely" happen.
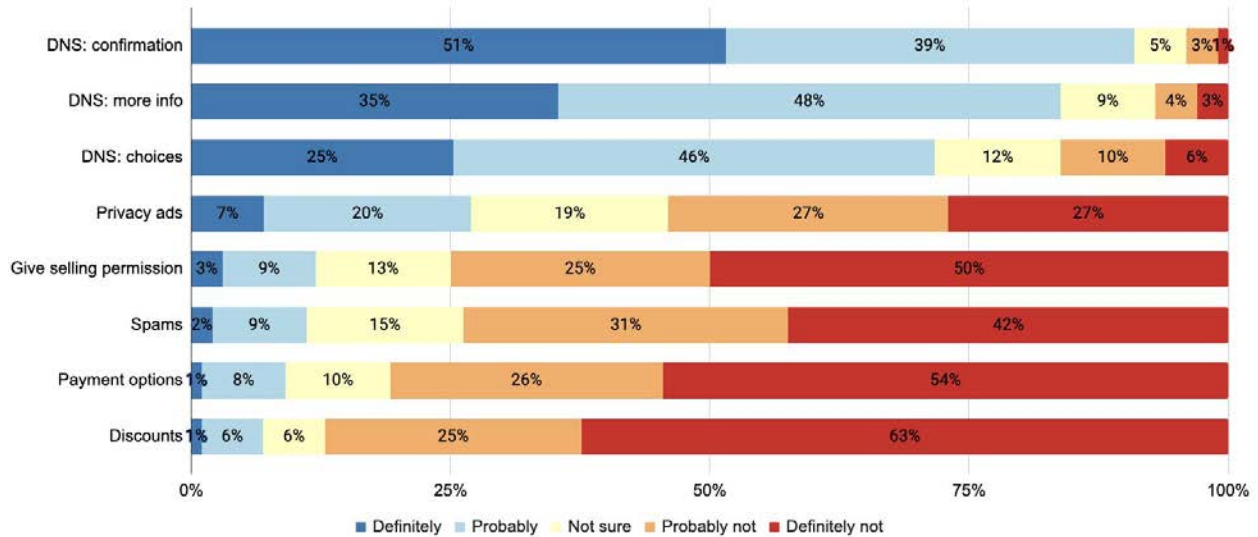
Figure 5: Distribution of participants' responses to the question "Which of the following do you think could happen if you clicked on this icon and link?" for eight provided scenarios.

3.2.2 No Icon Performed Best in Creating the Expectation of Do-Not-Sell Choices

Our regression models on participants' rated likelihood for the eight given scenarios revealed significant differences between icon conditions for three scenarios. For the scenario "It will take me to a page with choices about how my personal information is sold by the website," which is the most ideal scenario and closely aligns with the CCPA's requirement, between 66-79% participants across the five conditions considered this would "probably" or "definitely" happen (see Figure 6). **Only displaying the link text (no icon), performed best, with notable advantages over conditions with an icon**. The regression analysis further showed that *no icon* and *PriceTag* were significantly more effective at creating the expectation of do-not-sell choices than *Person* (OR=1.89, p=0.01; OR=1.95, p=0.008).
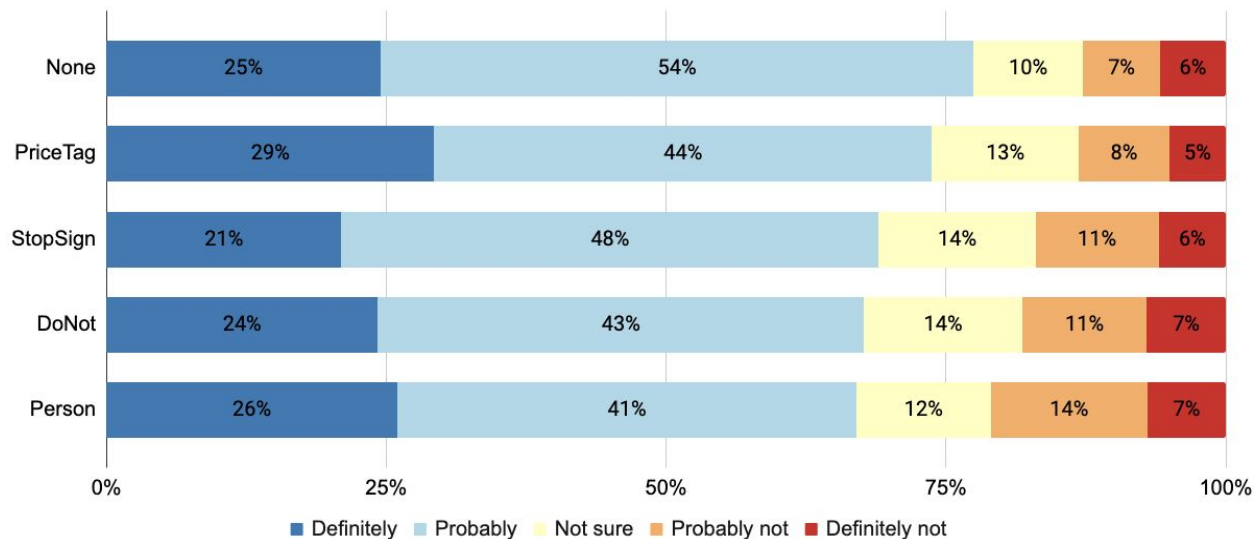
Figure 6: Distribution of participants' rated likelihood for the scenario "It will take me to a page with choices about how my personal information is sold by the website."

3.2.3 Potential Misconceptions Generated By Icons

For most of the incorrect scenarios, we found the choice of the icon, or even having an icon, had minimal impact on participants' expectations. However, it is worth noting that **for the *DoNot* icon, one misconception — ads about privacy and security products — was significantly more common than for other icons.** Specifically, 33% of participants who saw the *DoNot* icon expected that they would be redirected to privacy and security products ads. The likelihood of *DoNot* generating such misconception was significantly higher than for *PriceTag* (OR=1.71, p=0.03) and *no icon* (OR=1.81, p=0.02). Based on these findings, we concluded that **the *DoNot* icon should be avoided if the goal is to reduce misconceptions about privacy and security ads.**

3.3 Icon Preferences

After answering questions pertaining to the particular icon (or no icon) to which participants were assigned, we showed participants all four candidate icons in randomized order and asked them to rate how well each icon conveyed the concept of "Do Not Sell My Personal Information," to provide an opportunity for elaborating opinions and drawing comparisons between icons.

3.3.1 "DoNot" and "Person" Favored for Conveying "Do-Not-Sell" Concept

Our previous analysis of the scenarios show that all candidate icons, coupled with the link text, generated correct expectations about possible outcomes under the CCPA. Nevertheless, **none of the candidate icons received mean ratings that reached the "moderately" level for conveying the concept of "Do Not Sell My Personal Information," i.e., participants**

thought these icons did not represent this concept well.[9] Between the four icons, ***DoNot and Person performed better than the other two icons*** (see Figure 7). A Friedman test (non-parametric ANOVA) on the provided ratings, after excluding responses that selected "I don't know," further confirmed the statistically significant differences of rating distributions between icon conditions, $X^2(3)=437.2$, $p<0.001$, with a small effect size detected, Kendall's $W=0.16$. Pairwise Wilcoxon signed rank test between groups, with Bonferroni correction applied, revealed statistically significant differences between all pairs of conditions ($p<0.001$) for all comparisons, except *DoNot* vs. *Person*.
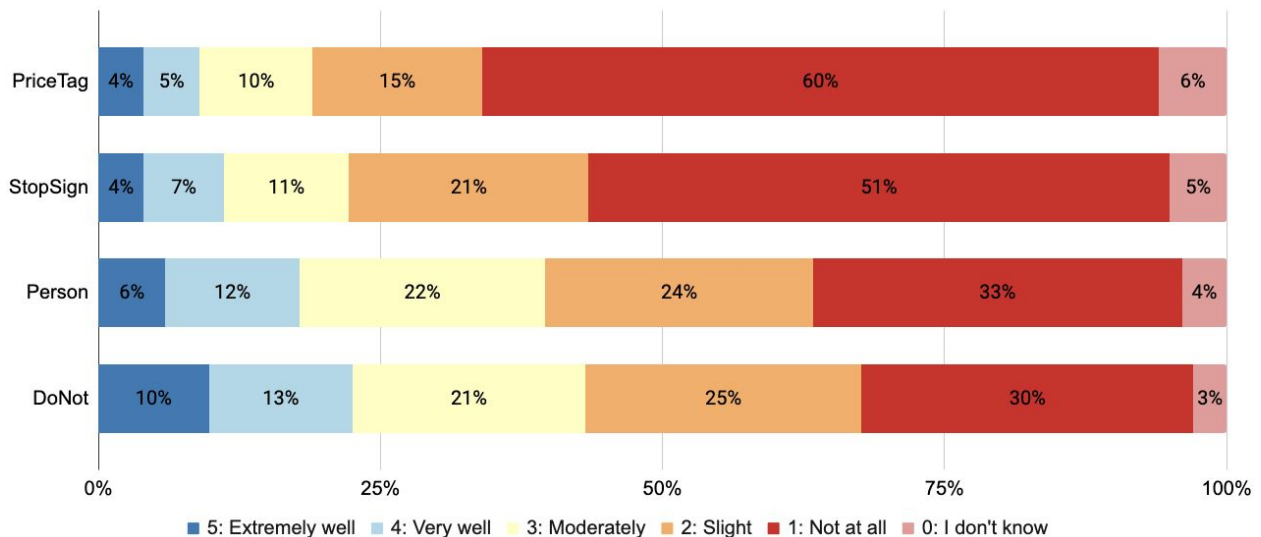

Figure 7: Distribution of participants' responses for each icon to "How well does the icon convey that there is an option to tell a website "do not sell my personal information?"

3.3.2 All Icons Conveyed Inaccurate Information When Viewed Alone

As shown in Table 2, our analysis of participants' open-ended responses about the reasons behind their ratings suggests that **all icons frequently conveyed information other than "do not sell my personal information."** The interpretation of things other than "Do Not Sell" occurred most frequently with the *PriceTag* icon (87.3%), followed by *StopSign* (82%), *Person* (67%), and *DoNot* (64.2%). Table 3 shows examples of some of the most common icon interpretations.

Conversely, a small percentage of participants expressed a positive opinion about the icon ("meaningful icon"), saying that the icon is clear / straightforward, or gave interpretations that reflect they had a correct understanding of the concept the icon intended to convey (e.g., "It says my information will not be sold for a dollar amount"). This occurred mostly with participants who saw the *DoNot* icon (29.4%), followed by *Person* (28.1%), *StopSign* (11.7%), and *PriceTag* (9%). Fewer participants explicitly stated that the icon conveyed the concept of "do not," "stop,"

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[9] The mean and standard deviation (SD) for each icon's received ratings: *DoNot* (mean=2.41, SD=1.35); *Person* (mean=2.27, SD=1.30); *PriceTag* (mean=1.60, SD=1.18); *StopSign* (mean=1.81, SD=1.26).

or "prohibit" and most of them said this for the *DoNot* icon. Few participants mentioned that any of the icons except the *Person* icon conveyed anything related to personal information.

Theme	Code	DoNot		StopSign		PriceTag		Person	
Conveying intended meaning	Meaningful icon	249	25.1%	99	11.2%	76	8.4%	129	13.0%
	Conveyed: do not	42	4.2%	2	0.2%	3	0.3%	16	1.6%
	Conveyed: personal info	0	0.0%	2	0.2%	2	0.2%	133	13.4%
Not conveying intended meaning	Convey inaccurate information	197	19.9%	280	31.7%	370	41.0%	162	16.3%
	Not conveyed: personal info	139	14.0%	122	13.8%	109	12.1%	102	10.3%
	Ambiguous	108	10.9%	161	18.2%	148	16.4%	79	8.0%
	Confusing	53	5.3%	40	4.5%	47	5.2%	106	10.7%
	Unclear	53	5.3%	43	4.9%	54	6.0%	96	9.7%
	Icon not sufficient	40	4.0%	26	2.9%	16	1.8%	55	5.5%
	Loose connection with privacy	25	2.5%	13	1.5%	15	1.7%	10	1.0%
	Prior knowledge needed	19	1.9%	9	1.0%	8	0.9%	20	2.0%
	Not conveyed: do not	2	0.2%	27	3.1%	17	1.9%	34	3.4%
	Not conveyed: choices	0	0.0%	3	0.3%	3	0.3%	0	0.0%
Not related to icon meaning	Icon stands out	28	2.8%	36	4.1%	22	2.4%	18	1.8%
	Other	16	1.6%	0	0.0%	0	0.0%	2	0.2%
	Icon is simple	7	0.7%	3	0.3%	1	0.1%	1	0.1%
	Icon too small	5	0.5%	5	0.6%	2	0.2%	10	1.0%
	Icon does not stand out	5	0.5%	12	1.4%	6	0.7%	8	0.8%
	Complicated	3	0.3%	0	0.0%	3	0.3%	10	1.0%

Table 2: Summary of explanations of ratings for how well each icon conveyed the concept of "Do Not Sell My Personal Information. Note, some participants provided multiple explanations.

Icon	Common interpretations of icon meaning other than "Do Not Sell"
DoNot	● **[Sales related, 110]** "Make me think of sales or buying something" / "Indicate free offers or information" ● **[Money related, 117]** "A sign for no money" / "I can only thing of no money/no cost" ● **[Payment related, 50]** "You can't pay with cash" / "An icon that would be used to stop payment"
StopSign	● **[Money related, 125]** "Something about spending money" / "This indicates money and nothing else" ● **[Sales related, 78]** "Sales prices and discounts related to the products" / "It almost looks like a discount sign" ● **[Payment related, 54]** "The number of payment options accepted" / "Stopping some type of payment transaction"
PriceTag	● **[Sales related, 339]** "The price or the discount of something" / "Something is for sale" ● **[Shopping related, 30]** "Something is being bought" / "It could be a icon for purchasing a product" ● **[Money related, 14]** "How to stop paying money" / "it's saying stop spending money."
Person	● **[Money related, 43]** "Currency exchange" / "The person is receiving money" ● **[Payment related, 40]** "A payment option of some kind" / "The checkout area where I can finish my purchases" ● **[Sales related, 31]** "A common symbol meaning the store is having a sale" / "A link to earn extra money or for discounts"

Table 3: Common interpretations of icon meaning other than "Do Not Sell" for candidate icons and their frequency.

3.3.3 Most Icons Failed to Convey the Concept of Personal Information

A notable number of participants mentioned that they were not able to connect the icon with the concept of personal information. This is especially the case for *DoNot*, *PriceTag*, and *StopSign*. For *DoNot*, 14.0% of participants commented that even though the meaning of the icon was somewhat clear, the icon did not contain any element that indicated the involvement of personal information. For *StopSign*, 13.8% of participants noted the same point, possibly because the stop sign-shaped icon and the dollar sign made it look more like stopping a "money-related" matter, not necessarily personal information. For *PriceTag*, 12.1% of participants did not infer the relationship between the icon and personal information, and commented that the icon conveyed a stronger sense of "sales" rather than "personal information." While 10.3% of participants also failed to derive the sense of personal information from *Person*, 13.5% found the opposite, commenting that the person icon in combination with the dollar sign reflected the sense of selling something personal for money.

3.3.4 Icons Only Make Sense When Accompanied by the Link Text

Similar to our previous studies [1,2], 137 participants indicated that the icons themselves were not sufficient and would only make sense when accompanied by the link text. This could possibly be due to our finding, reported above, that all icons except *Person* do not have a specific design element that conveyed to participants a sense of personal information. For instance, a participant wrote: "Not reading the text and just seeing the image, it's not very clear. Stop sign + money, nothing in it inherently signifies personal information." Other participants commented that text is needed because the icon only conveys a too vague concept of money, sales, or payment - e.g., "The icon communicates nothing at all without the accompanying text, other than it's something related to money which could be a million things."

Relatedly, 66 participants noted that they could not make sense of the icon because the icon was fairly new to them, e.g., "If I saw that icon without knowing what it was I would not know what it meant." Sometimes prior knowledge is also needed to understand certain elements of the icon in order to derive its meaning ("This might make sense for folks who know what a stop sign is"), which could create problems in a cross-cultural context ("The stop sign works in America anyway, because it says STOP"). Other participants noted that there would always be a learning curve for new icons ("Unless it becomes a world wide web known symbol like a lock means the website is secure, it could be loosely translated to mean anything the site wants it to be"), and emphasized on the importance of public education ("More consumer education is needed before this icon is widely adopted"). These comments echo our previous recommendations [1,2] that during an icon's initial adoption stage, an icon should always be used in combination with the link text until people are familiar with it.

3.4 Intention to Click

We asked participants how likely they were to click on the icon and link text if they noticed them for the first time on a website. This was followed by an open-ended question that asked them to elaborate on the rationale behind their selected answer option.

3.4.1 Participants Exhibited High Intentions to Click

Between 58-66% participants across the five conditions reported they would "definitely" or "probably" click on the icon and link text when first noticing them on a website. This indicates that all candidate icons, as well as the link text text alone, were sufficient to motivate users to take action or click if they have attracted the user's attention. Our regression analysis showed no statistically significant differences in intention to click between any two conditions, indicating that **the choice of the icon, or even having an icon, had minimal impact on participants' intention to click on the icon/link text for further interactions**.

3.4.2 Top Reasons for Intending to Click

We report top reasons for intending or not intending to click the button for all conditions together, since our analysis shows that these reasons were consistent across conditions. For participants who reported they would "definitely" or "probably" click on the icon and link text, **the most common reason, mentioned by 254 (26.1%) participants, was that them wanting to click the icon/link was motivated by curiosity**. Among them, 102 mentioned their curiosity on a generic level without specifying the subject matter. 106 reported being curious to learn about the website's data practices, such as how the website sold or did not sell their data, or whether their data was safe and secure. 46 explicitly mentioned that they were curious about what options were available for "Do Not Sell My Personal Info."

Aside from curiosity, 142 (14.6%) participants indicated that their intention to click was rooted in the opposition to the idea that companies could make profits by selling consumers' data. 96 (9.9%) participants mentioned that they valued their privacy online by saying "my personal information is everything" or "I always worry about my personal information." They further listed several potential consequences if their privacy was invaded, such as "a lot of spam" or "identify theft." As such, they were motivated to explore options that could protect their privacy.

3.4.3 Top Reasons for Intending not to Click

For participants who reported they would "definitely not" or "probably not" click on the icon and link text or that they were not sure,[10] the top reason for not clicking was that they had "no concerns," mentioned by 93 (9.6%) participants. Among them, 60 specifically mentioned that they had no concerns over their personal information, out of the notion that their personal information would be collected and sold regardless and there was nothing they could do to prevent that from happening. The other 33 participants noted that they generally did not care about their own privacy.

Additionally, 66 participants indicated that they were not motivated to click because the icon was unfamiliar/appeared fairly new to them, and there was no way for them to figure out its legitimacy. 42 participants mentioned that they would not click due to personal habits, e.g., they tended to skip links and pages that were not related to their primary purposes of visiting the website. 52 participants were unsure whether they would click, since the action would largely depend on what they would do on the website: if they were only browsing the website, they might not click; once they decided to make a purchase, they would potentially click the icon and explore options to protect their personal information.

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[10] We treated "not sure" as not having the intention to click, as our data shows that when participants selected this answer option, their open-ended responses tended to explain why they would not click the icon.

3.6 Recognizability at a Small Scale

In the course of working with the candidate icons, we observed that most of them were difficult to recognize when scaled to a small size (e.g., 16x16 pixels). The fine lines in PriceTag and Person could be particularly problematic, while StopSign was easier to interpret when scaled down.

3.5 Comparison with Previous Findings

In the current study we did not ask participants to comment on what they thought the icons conveyed until after they had seen them with the accompanying text. However, in our February 4 report [1] (which surveyed participants from across the US, not just California), we reported on participants' responses when we asked each of them to interpret one of five proposed icons without any accompanying text in our round 2 icon test (four icons developed by us; one proposed by the DAA). Three of those icons are similar to three of the icons tested in the current study, and thus it is useful to revisit our previous findings. In particular, the *Person* icon resembles the previously tested *ID card* icon, the *DoNot* icon resembles the previously tested *Slash-dollar* icon, and the *StopSign* icon resembles the previously tested *Stop-dollar* icon.

As shown in the summary of responses from the February 4 report shown in Table 4, most participants who saw these icons had misconceptions about the meaning of each icon, and these misconceptions were similar to what we found in the current study when we asked participants to explain the reason behind their ratings for each icon (summarized in Table 3).

The presence of the dollar sign in three of the icons invoked the concept of money. In the case of the *ID card* it most commonly conveyed the incorrect idea that something costs money, and only occasionally the correct (but incomplete) notion that the symbol was related somehow to a person and money. In the case of the *Slash-dollar* icon, it mostly conveyed that something is free or that cash/dollars are not accepted, and only occasionally conveyed the correct (but incomplete) notion that selling is not allowed. In the case of the *Stop-dollar* icon, it mostly conveyed concepts related to money and prices, with no correct interpretations. The *DAA* icon did not fare any better, with most participants interpreting it as conveying concepts related to getting more information or as an audio/video play button.

On the other hand, our stylized *Toggle* icon was correctly interpreted by most participants as conveying concepts related to accepting/declining or activating/deactivating, or more generally, concepts related to options, choices, or settings. This is also incomplete, as it does not convey the kind of options that can be exercised. However, unlike the other icons tested, the *Toggle* icon did not tend to mislead participants. By reliably conveying "choice," this icon could complement and emphasize the "Do Not Sell" tagline and its correct interpretation, which was one of the reasons we recommended it.

Icon From Previous Round 2 Icon Test	Similar Icon From Phase 2 Study	Common Interpretations (# of participants) From Previous Round 2 Icon Test
Toggle		• **accept/decline something (11)** • **activate/deactivate something (5)** • okay/exit options (4) • mark as true/false (4)
DAA		• get more information (15) • start audio/video content (7) • denotes website is safe or private (3) • move forward or next (2) • something related to ads (1)
ID card	**Person**	• something costs money (10) • sending money to someone (4) • account balance related (4) • payment methods accepted by website (2) • **something related to a person and money (3)** • price related (2) • receiving money from someone (2)
Slash-dollar	**DoNot**	• something is free or requires no money (12) • cash/dollars not accepted (7) • money (4) • **selling is not allowed (1)**
Stop-dollar	**StopSign**	• money (14) • price related (6) • stop spending money (5) • something costs money (2) • stop (2)

Table 4: Summary of responses to "What does this symbol communicate to you?" from participants who saw icons without taglines in the Round 2 icon test reported in our prior study [1]. Correct interpretations are highlighted with bold text. Similar icons in our current study are shown in the second column.

The February 4 report also reported on the results of our Opt-Out Icon + Tagline Combination Study, in which we showed participants icon and tagline combinations in the context of the fictitious shoe retailer website and asked "What do you think would happen if you clicked on the symbol and link in the highlighted area on this web page?" We tested the *DAA icon*, *Slash-dollar* icon, *Toggle icon*, and no icon in combination with five taglines and no tagline. We revisited the results for these icons in combination with the "Do Not Sell My Personal Information" tagline. We found similar rates of correct responses for each of these icons. Among incorrect responses,

besides the misconceptions mentioned in Table 4 regarding what the symbol communicates, we found a small number of other types of misconceptions about what happens when the symbol/link is clicked, including that clicking on the *Toggle icon* might immediately cause the website to either start or stop selling personal information. These misconceptions occurred less frequently when the icon was paired with the "Privacy Options" tagline.

4. Conclusions

As can be seen from the summary of key findings from our quantitative analysis in Table 1, the effect of having an icon vs. no icon is nuanced. **While having an icon next to the link could make the link stand out (especially for the two octagon-shaped icons *PriceTag* and *StopSign*), more importantly, the tested candidate icons also negatively impacted participants' ability to generate correct expectations related to do-not-sell, and might induce misconceptions.** In addition, all of the candidate icons received low average ratings between 1 (slightly) and 3 (moderately) on a 5-point scale in response to the question "How well does the icon convey that there is an option to tell a website 'do not sell my personal information?'"

The *DoNot* icon was most preferred by participants, but still scored only 2.41 on the 1-to-5 preference scale. While 291 participants noted that it was meaningful or conveyed relevant concepts, 636 participants did not find it meaningful or stated that it conveyed concepts related to sales, money, or payments. It was also the icon most likely to convey incorrectly that clicking would lead to a page with ads about privacy and security products. It did not grab participants' attention significantly more than a link with no icon.

The *Person* icon was the second most preferred by participants, but scored only 2.37 on the 1-to-5 preference scale. While 278 participants noted that it was meaningful or conveyed relevant concepts, 664 participants did not find it meaningful or stated that it conveyed concepts related to sales, money, or payments. It was also the icon least likely to convey that clicking would lead to a page with choices about how personal information is sold by the website. It did not grab participants' attention significantly more than a link with no icon.

The *PriceTag* icon was most likely to grab participants' attention. It was also the icon most likely to convey correctly that clicking would lead to a page with choices about how personal information is sold by the website and least likely to convey incorrectly that clicking would lead to a page with ads about privacy and security products. However, it was least preferred by participants, scoring only 1.60 on the 1-to-5 preference scale and it was the icon participants described most frequently as not conveying its intended meaning. While 81 participants noted that it was meaningful or conveyed relevant concepts, 787 participants did not find it meaningful or stated that it conveyed concepts related to sales, money, or shopping. In particular, 370 (41%) participants considered the icon as conveying inaccurate information.

The *StopSign* icon was second most likely to grab participants' attention. However, it was ranked third by participants, scoring only 1.81 on the 1-to-5 preference scale. While 103 participants noted that it was meaningful or conveyed relevant concepts, 724 participants did not find it meaningful or stated that it conveyed concepts related to sales, money, or payments. This icon appears to us to be the icon most recognizable at a small scale, but we did not test this with participants.

We found the same types of misconceptions about the meaning of icons when we tested similar designs for our February 4 report. However, as noted in Section 3.6, we also found that our previously tested stylized blue toggle icon reliably conveyed the concept of choice, and thus might be worth considering as an alternative.

We recommend refraining from using one of the four tested icons to avoid generating problematic misconceptions. Instead, alternative icons should be considered and evaluated, or only the link text should be used, accompanied by clear stipulations in the CCPA regulations to mandate where the link should be placed. These measures should be accompanied by extensive public education efforts to increase consumers' awareness of the link and where it is commonly located.

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Appendix A: Survey Questions

Survey instruction

We will show you a screenshot of a website on the next page and will ask you to answer a number of questions about it. Make sure not to reveal any private or personally identifiable information about yourself or others in your responses to any open-ended questions.

Attention

[Display the screenshot]

Imagine you were shopping at this online store and you wanted to know whether you could have a pair of shoes shipped to you overnight. Do you see a link you could click to find out? If the text in the screenshot above is too small to read, please zoom in as needed.
  ● Yes
  ● No

[If "Yes" to the last question] Please describe the text of the link that could help you determine whether you could have a pair of shoes shipped to you overnight. *[Open-ended response]*

[Hide the screenshot]

Imagine you were shopping at this online store, and you were concerned about the store selling your personal information. Do you remember seeing any feature in the screenshot that you could use to prevent this from happening?
  ● Yes
  ● No

[If "Yes" to the last question] You saw a feature that you could use to prevent the store from selling your personal information. Please describe what the feature looks like. *[Open-ended response]*

[Display the screenshot]

Here is the same screenshot we showed you previously. Please take a look at it again. Do you see any feature in the screenshot that you could use to prevent the store from selling your personal information?
  ● Yes
  ● No

[If "Yes" to the last question] You saw a feature that you could use to prevent the store from selling your personal information. Please describe what the feature looks like. *[Open-ended response]*

Intention to click

[Display the screenshot, with icon and link highlighted in an orange box]

[Display the zoomed-in icon and link]

Imagine this was the first time that you noticed this icon and link text on this or any other website. Do you think you would click on the icon and link?
- Definitely not
- Probably not
- Not sure
- Probably
- Definitely

You indicated you would *[piped answer option from the last question]* click on the icon and link, if you noticed them for the first time on this or any other website. Please describe why you selected this answer option. *[Open-ended response]*

Communication of "Do Not Sell"

[Display the screenshot, with icon and link highlighted in an orange box]

[Display the zoomed-in icon and link]

What do you think would happen if you clicked on this icon and link? *[Open-ended response]*

Which of the following do you think could happen if you clicked on this icon and link? *[Answer options: definitely, probably, not sure, probably not, definitely not.]*
- It will take me to a page where I can confirm that I do not want my personal information to be sold by the website
- It will take me to a page with choices about how my personal information is sold by the website
- It will take me to a page with more details about how the website uses and shares my personal information
- It will give the website permission to sell my personal information
- It will cause the website to send me unwanted emails
- It will take me to a page with ads about privacy and security products
- It will take me to a page with sales, discounts, or free stuff
- It will take me to a page related to payment options

Icon preferences

[For each of the four icons, display the following two questions. The order of icons are randomized.]

How well does the following icon convey that **there is an option to tell a website "do not sell my personal information?"** *[Answer options: I don't know, not at all, slightly, moderately, very well, extremely well]*

Please explain why you gave this rating. *[Open-ended response]*

Familiarity with CCPA

Are you aware of any laws in the United States that require companies to provide a "do not sell my personal information" option?
- No
- Yes (please name or describe them): ____

Demographics

What is your age?
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75-84
- 85 or older
- Prefer not to answer

What is your gender?
- Woman
- Man
- Non-binary
- Prefer to self describe: ____
- Prefer not to answer

What is your race / ethnicity? Please choose all that apply.
- White
- Black or African American
- Hispanic or Latino

- American Indian or Alaska Native
- Asian
- Native Hawaiian or other Pacific Islander
- Other: ___
- Prefer not to answer

What is the highest level of education you have completed?
- Less than high school
- High school degree or equivalent
- Some college, no degree
- Associate's degree, occupational
- Associate's degree, academic
- Bachelor's degree
- Master's degree
- Professional degree (e.g., J.D. and M.D.)
- Doctoral degree
- Prefer not to answer

What was your total household income before taxes during the past 12 months?
- Under $15,000
- $15,000 to $24,999
- $25,000 to $34,999
- $35,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- $100,000 to $149,999
- $150,000 or above
- Prefer not to answer

In which state do you currently reside? *[A drop down list of the 50 states, D.C. and Puerto Rico, in addition to "I do not reside in the United States" and "Prefer not to answer"]*

[If "California" is selected] Please enter the 5-digit ZIP code of the area you currently reside in. If you prefer not to answer, please enter "00000".

[If "California" is selected] In which county of California do you currently reside? *[A drop down list of all California counties, in addition to "I don't know" and "Prefer not to answer"]*

Which of the following best describes your primary occupation?
- Administrative support (e.g., secretary, assistant)
- Art, Writing, or Journalism (e.g., author, reporter, sculptor)
- Business, Management, or Financial (e.g., manager, accountant, banker)
- Education or science (e.g., teacher, professor, scientist)

- Legal (e.g., lawyer, paralegal)
- Medical (e.g., doctor, nurse, dentist)
- Computer Engineering or IT Professional (e.g., programmer, IT consultant)
- Engineer in other fields (e.g., civil or bio engineer)
- Service (e.g., retail clerk, server)
- Skilled Labor (e.g., electrician, plumber, carpenter)
- Unemployed
- Retired
- College student
- Graduate student
- Mechanical Turk worker
- Other: ___
- Prefer not to answer

Which of the following best describes your educational background or job field?
- I have an education in, or work in, the field of computer science, computer engineering, or IT
- I do not have an education in, nor do I work in, the field of computer science, computer engineering or IT
- Prefer not to answer

Appendix B: Participant Demographics

Category	Our Sample	Californians
Gender		
Men	50.4%	49.7%
Women	47.6%	50.3%
Non-binary	1.3%	N/A
Prefer not to answer	0.7%	N/A
Age		
18 to 24 years	15.9%	8.5%
25 to 34 years	40.5%	15.3%
35 to 44 years	23.2%	13.3%
45 to 54 years	11.7%	12.8%
55 to 64 years	6.4%	12.1%
65 to 74 years	1.9%	8.3%
75 years and over	0.2%	6.0%
Prefer not to answer	0.2%	N/A
Race		
White	47.9%	72.1%
Black or African American	4.9%	6.5%
American Indian and Alaska Native	0.2%	1.6%
Asian	22.3%	15.3%
Native Hawaiian and other Pacific Islander	0.5%	0.5%
Hispanic or Latino	18.1%	39.3%
Two or more races	4.6%	36.8%

Other / Prefer not to answer	1.6%	N/A
Education		
Less than high school	0.3%	16.2%
High school degree or equivalent	7.5%	20.7%
Some college, no degree	22.7%	20.8%
Associate's degree (academic or occupational)	10.3%	8.0%
Bachelor's degree	45.5%	21.3%
Graduate or professional degree	13.3%	12.9%
Prefer not to answer	0.4%	N/A
Region within California		
Bay Area	13.5%	19.0%
Central	13.3%	11.0%
Central Coast	3.5%	5.1%
Desert	10.8%	12.0%
Northern California	10.7%	10.6%
Southern	46.6%	42.3%
Don't know / Prefer not to answer	1.6%	N/A

Appendix C: Codebook

Open-ended responses for delivery link (i.e., responses to "Please describe the text of the link that could help you determine whether you could have a pair of shoes shipped to you overnight.")

Code	Definition	Example
correct	The text mentions the word "delivery"	"delivery link" "delivery information"
incorrect	The text does not include words that are relevant to delivery	"find in the order list" "contact us" "shipping information"
n/a	Use it when the cell is empty	

Open-ended responses for do-not-sell icon/link (i.e., responses to "You saw a feature that you could use to prevent the store from selling your personal information. Please describe what the feature looks like.")

Code	Definition	Example
correct	The text mentions either a (red) icon or the link text by naming it (do not sell my personal information or do not sell my info), or both, or the location (e.g., the bottom right of the page)	"It was a red icon and it stated next to it: Do not sell my personal information"
incorrect	The text mentions something vague about privacy/security, but does not call out the do-not-sell icon or link	"privacy concerns related" "There was a link about privacy" "privacy and security"
n/a	Use it when the cell is empty	

Open-ended responses for CCPA description (i.e., responses to "Are you aware of any laws in the United States that require companies to provide a "do not sell my personal information" option? If yes, please name and describe them.")

Code	Definition	Example
correct	The text spells out CCPA (California Consumer Protection Act) or mentions California specifically	"California law requires all websites that sell personal information to offer an opt out option."
incorrect	The text mentions "a federal law" or some other laws that are unrelated to	"I don't know what the laws are called, but I do believe there are Federal laws

	do-not-sell		that protect us from having our personal information sold."
n/a	Use it when the cell is empty		

Open-ended responses for expectations (i.e., responses to "What do you think would happen if you clicked on this icon and link?")

Code	Definition	Example
do not sell: choices	Specific mentioning that consumers will have the option to choose whether or what types of data can or cannot be sold to third-parties by the site	It would give me a bunch of options on not to sell my information.
do not sell: confirmation	The link will lead to a page that double checks the user does not want their information to be sold	I would be taken to a page where I am given more information about how this store handles my data and asked to make a final confirmation of my choice.
do not sell: immediate	The company will stop selling the user's personal data immediately	Exactly what it says. Would just not put me on whatever lists that get sold to third parties.
do not sell: more info	More info on how to make use of the "do not sell" choice or how the company does not sell consumer information to third parties, a more granular version of "more info: data practices"	An explanation explaining what they will not sell.
do not sell: payment required	The user expect that they would need to pay to prevent the company from selling their data	I think it may take me to another page where they want me to pay for this feature.
do not sell: provide info	The user will be asked to provide more information about themselves in order to make a "do-not-sell" request	I think it would lead me to another page that I would have to fill out to stop the selling of my information.
do not sell: doubted	Participant indicates that they are skeptical that the do not sell request would be honored	It would surprise me if it actually worked to suppress the sale of one's personal information.
garbage	Nonsensical text	good
less privacy	The participant indicates that clicking	Your personal information will be

protection	the icon/link would lead to less privacy protection or another negative outcome but doesn't specify that it's because their data would now be sold	available and spread on the internet.
more info: data practices	More info on how the site collects, uses, and shares user data, a more granular description of privacy policy	The page would take me to a debriefing page of text informing me how the online store will use my personal information.
more info: generic	The generic feeling that they would see more information, without specifying that the information is related to do-not-sell	I think it would redirect me to a different shopping link or supply additional information.
more info: privacy choices	The link will lead to more information talking about how one can protect their own privacy or make use of this site's privacy settings	I think it would lead to a page with the company's privacy agreement. It would tell you steps to take to keep your information private.
more info: products/servic es	More info on the products and services sold on this website, also includes promotions and discounts	I think it would lead me to a page with more information about how to purchase these shoes.
more privacy protection	The user will enjoy a higher level of privacy protection that does not relate to do not sell, such as less tracking and use of cookies, removing existing collected data, or providing an incognito version of the site	They will not track your behaviors and save it.
new page	The link leads users to a new page or opens up a modal but the response does not specify what may be on this page/modal	It would send me to another webpage.
not sure	The user is not sure what to expect	I am not sure what would happen.
nothing	The user expects nothing would happen if they clicked on the icon/link	Nothing at all. I think they would just waste my time.
opt-out choices	Mention "opt out" in a generic way but does not specify "opt out of selling my personal info," or opt out of other things such as data collection	It would give me an option to opt out.
other	Miscellaneous responses	
privacy	The user will be led to a page with	I think it would take me to a page that

choices: generic	choices/controls that can help protect their privacy, without specifying the privacy control is related to do-not-sell	had an option to keep my privacy or an explanation about what the website does with personal information.
privacy policy	Mention the word "policy" "privacy policy" "transparency statement" "legal statement" or having to agree to such legal terms	Maybe it sends you to a privacy policy page.
scam	The link will lead to a scam, virus, or other malicious content	It could be a phishing link that makes it seem to be safe but it's really not.
spamming	The link leads to settings that would bring the user annoying messages such as unwanted emails	Your IP address and information would go to other sources and then you would receive a bunch of emails from other sources.

Open-ended responses for intentions to click (i.e., responses to "You indicated you would...click on the link, if you noticed it for the first time on this or any other website. Please describe why you selected this answer option.")

Code	Definition	Example
garbage	nonsensical text	N/A
other	used for responses that do not match existing codes	
against data being sold	The user opposes to the idea that companies can make profits by selling user data	I would not want my personal information to be sold.
commitment to privacy	The icon/link demonstrates the company's commitment to user privacy	It goes to show that the website values their customers' privacy.
curiosity: collected data	The user is curious to find out what data about them is collected by the website	I would like to see what personal information they collect and find out more about it.
curiosity: do-not-sell choices	The user is curious to know more about what options are available for "do not sell my personal info"	To see what options were available to block the selling of my info.
curiosity: do-not-sell practices	The user is curious to know more about what data the website sells or does not sell, how committed the website is about not selling user data	I would be curious to know more about this. I would want to know this information as it pertains to this website and also what it might tell me

	etc.	about any other website without this link.
curiosity: generic	The user expresses a generic curiosity of "checking out what's behind"	I would be curious about what the link would say. It would be easy enough to click on the link and find out.
curiosity: payment	The user is curious to know whether they will be charged to use the do-not-sell control	I am curious about why there is a price tag as an icon. I would want to know if they want us to pay a fee in order for them not to sell our private information.
trust issue	The user is unsure about the website's integrity	I wouldn't trust the site completely as it is my first time using it.
icon stands out	The icon draws the user's attention to it	It is red, which sticks out and is a sign, which also sticks out.
curiosity: important info	The user think what's behind the icon/link is probably something important	I would probably click on the icon; it seems very important to read regarding my personal information.
value my privacy	The user says something along the line of "I value my privacy" "I care about my privacy"	I would want to click on this link because I definitely care about my privacy online.
bad opt-out experience	The user expects that exercising the do-not-sell control would be lengthy and inconvenient	It also seems like it would be a hassle to opt into this service.
limited website usage	The user expects that they won't use the website a lot, and hence very little data about them will be collected	I would not think about it too much, especially if I did not plan on using the website more than one purchase.
more research needed	The user says they need to do more research to know whether the icon/link is worth clicking	I'm not sure exactly what that link means. I would probably want to do a little research or know a little more about what that means before I agreed to it.
no concern: data being sold	The user is not concerned about the practice that websites sometimes sell user data to third-parties	it does not concern me enough or is a big enough threat that I would consider it.
no concern: generic	The user says something along the line of "it doesn't concern me" but does not specify what "it" means	Not usually a concern of mine.
no concern:	The user says they don't really care	I just don't care about my personal

personal info	about their personal information/information collected by a shopping website	information like that, especially not on a shoe vendor's site.
no meaningful control	The user expects that the icon/link will lead to lengthy information with no meaningful control about do-not-sell	The title also made it seem like the link is just a privacy information since it is located under the information section.
phishing concern	The user fears that it might be a phishing link	I am not sure whether it's a phishing link or not.
trust in the website	The user trusts that the website will handle their data well	I have no reason to distrust the website or think they would mishandle my information in any way.
negative consequences	The user worry that they will suffer negative consequences as a result of using this do-not-sell control	I would be worried about potential negative consequences of clicking on this link. For example, the store might give me a harder time when I am requesting a refund or disputing a transaction because they don't like the fact that I disallowed them from selling my personal data.
personal habit	The user has his/her own preferred way of doing something	I don't normally do this for other websites so I might not think so.
location	The location of the icon is easily missed by the user	Especially where right to left reading is concerned it is listed almost last at the lower right in a block of other fairly nondescript information.
usability	The usability of the website will cause the user not want to click	I think it is too much work to click the link.
depends on behaviors	Whether the user decides to click on the icons depends on whether they will purchase something from the site	I haven't entered any personal information so I don't think I would feel a need to click on it. If I had entered any personal information, I might feel differently.
distraction	The user considers clicking on the icons as a distraction from what they are doing	I would probably be too focused on buying the item rather than the "do not sell my information" link.

Open-ended responses for ratings (i.e., responses to "How well does the following icon convey that there is an option to tell a website "do not sell my personal information?" Please explain why you gave this rating.")

Code	Definition	Example
ambiguous	The user could not get it from the icon that it represents "do not sell my personal information" / The user struggled to interpret the meaning of the icon	This is slightly better, but overall I think I would be confused if I saw this icon.
complicated	The user explicitly mentioned that the icon is complicated	It isn't clear and a bit complicated.
confusing	The user could interpret something out from the icon, but the icon meant things other than "do not sell my personal information"	It's a little misleading but that icon is the most effective so far in terms of implying something about my payment information would not be shared.
convey inaccurate information	The icon conveys message that is not correct or inaccurate, not related to "do not sell personal information" or "personal information"	Reminds me of currency exchange.
icon does not stand out	The icon does not stand out and fails to attract the user's attention	This icon doesn't show as much attention or warning.
icon not sufficient	The icon does not make sense unless accompanied by the link text "do not sell my personal information"	Only if the icon is next to the text "do not sell my personal information'.'
icon too small	The icon is too small when zoomed out	It was very small and, again, the icon with the price tag strikes me as ambiguous or misleading.
not conveyed: personal info	The meaning of the icon is somewhat clear, but it is hard to be connected with personal information	It is obvious that the symbol means "stop" and the dollar sign represents money, it is just hard to connect it to one's personal information.
loose connection with privacy	The icon does not convey the concept of data privacy / security	All I see is a money sign, no correlation with privacy.
not conveyed: do not	The icon does not convey the sense of "do not" or "stop"	The dollar sign says money is involved, but no line through it to indicate "No."

prior knowledge needed	The meaning of the icon needs to be learned over time / through educational campaigns	Another cryptic symbol that would have to be learned.
unclear	too little information is provided, so it is not clear what the participant means	It just doesn't fit.
conveyed: do not	The icon conveys the sense of "stop" "do not" "something is not allowed" "something is prohibited"	This seems closer to something that would make me think it's stopping something or forbidding something.
conveyed: personal info	The icon specifically conveys some idea related to "personal information"	The icon conveys something about selling and the user. People could most likely conclude it's about personal information.
icon is big	The icon is big enough to be seen even when zoomed out	The icon is big bold and in your face.
icon is simple	The icon is simple and not overly complicated	Because it's very straightforward
icon stands out	The icon stands out and can easily grab the user's attention due to some reason, e.g., red color	The red icon with the dollar sign crossed out sends out a visual message and stands out.
meaningful icon	The icon conveys the meaning of "do not sell my personal information" to some extent	If it was a common place I could see people understanding this icon pretty quickly.
dollar sign: negative	The user does not like the dollar sign	Still not perfect. I do not like the dollar sign.
price tag: negative	The user does not like the price tag	The price tag symbol adds no useful visual information to the icon.
stop sign: negative	The user does not like the stop sign	It is hard to tell that the circle is a stop sign so the meaning is confusing
person: negative	The user does not like the little person icon	Somewhat unclear since a symbol of a person doesn't necessarily mean info.
strike through: negative	The user does not like the strike through	The slash symbol means do not go there
red: negative	The user does not like the use of red color	The color red is a cautionary sign and the icon does not look valid or coherent.
money related	The icon conveys some concepts	The icon communicates nothing at all

	related to money or cash	without the accompanying text, other than it's something related to money which could be a million things
pay for do-not-sell	The icon means that consumers need to pay to prevent their information from being sold	When I first saw it I thought it was an option for me to pay to have the website not sell my information. The sentence already has the word "sell" in it, we don't need the dollar sign/tag/stop sign icon.
payment related	The icon is related with payment options or no payment	Ambiguous and misleading. It looks like they want me to pay for something.
sales related	The icon conveys the concept of sale, price, price tag, something is being sold, discounts, coupons, deals	It shows a strike out over the money sign which is ok, but I'd still think it might convey a sale.
shipping related	The icon conveys the concept of shipping	It makes me think it will stop something money related, associated with a price tag or perhaps shipping.
shopping related	The icon conveys concepts related to shopping (stop shopping), buying (stop buying), purchases, cancel order	This icon doesn't really explain the information to not sell my information because it has a price tag in the stop sign. This indicates possibly to stop shopping.
ads related	The icon conveys concepts related to ads	The dollar sign could refer to targeted ads.
selling personal info	The icon conveys the concept of "selling personal info" which is the opposite of do-not-sell	It looks like a generic message, which could mean that they are selling your information, or that it's completely unrelated like for payment information.
dollar sign: positive	The user calls out the dollar sign as a positive element that helps with their interpretation	It's red, which happens to be a very eye catching color plus, it has a dollar sign within it. The lettering is also bolded next to it so it's really hard to miss.
red color: positive	The user calls out the red color as a positive element that attracts their attention	It's red, which happens to be a very eye catching color plus, it has a dollar sign within it. The lettering is also bolded next to it so it's really hard to miss.

stop sign: positive	The user calls out the stop sign as a positive element that helps with their interpretation	Again the red stop sign gave it away.
price tag: positive	The user calls out the price tag as a positive element that helps with their interpretation	Because the icon looks like a red stop sign with a price tag, which could indicate not to sell something but some people might not realize it means not to sell their information.
person: positive	The user calls out the little person icon as a positive element that helps with their interpretation	The icon fully explained it. pepo sign embedded in a stop sign. it is a perfect match.
strike through: positive	The user calls out the strike through as a positive element that helps with their interpretation	Because the way it is crossed out for them not to make money off of my information.