Cues, Attention, and Charitable Giving

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Abstract

We identify cue-based beliefs as a source of context dependence in charitable giving. Adapting associative memory models to donations, we predict that uninformative cues shift giving by changing which beneficiaries and needs come to mind. In online experiments, cues drawing attention to global (local) needs increase (decrease) giving to an international cause, and open-ended text data confirm the attentional mechanism. In a natural field experiment with 105,000 donors, a group appeal that refers to fellow donors and is intended to increase donations backfires—reducing giving by 33%—plausibly because it cues local rather than global needs. Complementary online experiments replicate this finding and support the attentional mechanism. Our results helps organize evidence on media-driven shifts in giving, the backfiring of norm-nudges, and non-replication of priming interventions.

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1 Introduction

Acts of generosity are informed by judgments about their impact. A large literature on charitable giving shows that donors respond to the expected consequences of giving, including effectiveness and efficiency information (Andreoni, 2006; List, 2011; Gneezy et al., 2014; Karlan and Wood, 2017).[1] To decide whether, where, and how to help others, people need to consider who will benefit, by how much, and how the consequences of helping compare with other possible uses of their resources. This is inherently difficult. People rarely consider all relevant beneficiaries, needs, and trade-offs from scratch. Some come to mind readily; others do not. This suggests a simple but powerful possibility: prosocial behavior may depend not only on preferences and information, but also on cues in the immediate choice environment that shape which beneficiaries, needs, and trade-offs come to mind when people evaluate whether to act generously.

A growing literature shows that beliefs more generally are formed through cue-based attention and associative memory rather than exhaustive consideration of all relevant information—and that even uninformative cues can change judgments (Gennaioli and Shleifer, 2010; Bordalo et al., 2023; Enke et al., 2024; Conlon and Kwon, 2025; Bordalo et al., 2026). Applied to prosocial behavior, this mechanism suggests that uninformative cues can shift generosity by changing which beneficiaries, needs, and trade-offs come to mind at the moment of choice. This has far-reaching implications. At the micro level, it means that the framing of fundraising appeals can inadvertently redirect donations—not because of what appeals tell donors, but because of what they bring to mind. At the macro level, it means that world events, media coverage, and policy discourse can shift the landscape of charitable giving by changing which needs are salient at any given time (see, e.g., Jaimovich et al., 2026). Understanding this mechanism is therefore important for the design of fundraising campaigns, information provision, and the cultivation of cooperation in organizations and society more broadly.

In this paper, we identify cue-based beliefs as a source of context dependence in charitable giving. We develop a framework in which donors care about the consequences of their giving and form beliefs through cue-driven attention to charity and recipient attributes. We test the framework's prediction that uninformative cues influence giving in preregistered online and natural field experiments. Our results are consistent with the model's prediction regarding actual donor behavior and the mechanism of cue-driven attention. In addition, we document the relevance of giv-

[1] In addition, giving can be shaped by impure motives (Andreoni, 1989, 1990; Ottoni-Wilhelm et al., 2017), including warm glow (Crumpler and Grossman, 2008), conditional cooperation (Frey and Meier, 2004; Shang and Croson, 2009), conformity (Goette and Tripodi, 2021), and social image (DellaVigna et al., 2012; Andreoni et al., 2017).

ing from cues in a field setting and discuss implications of our results for the design of fundraising appeals, behavioral interventions, and the broader question of why prosocial behavior is often so context-dependent.

Framework. We develop a conceptual framework for giving from cues. We adapt models of associative memory and belief formation (Bordalo et al., 2023; Conlon and Kwon, 2025) to a setting in which a donor chooses between charities characterized by attributes—features of the charity and its recipients—that influence the consequences of a donation. Donors care about consequences but cannot attend to all relevant attributes at once. Instead, they form beliefs through a sampling process in which contextual cues determine which attributes come to mind. A cue increases the weight on states of the world that are similar to it, tilting the donor's simulated belief distribution away from the rational benchmark. Critically, cues need not carry any information about the charity or its recipients: a cue that merely draws attention to a feature—say, local need—shifts the set of attributes the donor considers, and thereby shifts beliefs about the relative merits of competing causes. The framework predicts that uninformative cues drawing attention to attributes favoring one cause over another shift giving toward that cause, accompanied by a measurable change in which attributes donors attend to.

Experimental evidence. We then test our framework. In two preregistered online experiments on Prolific with UK-based subjects (N $\approx$ 2,900 in total), we vary the content of a cue that precedes a donation decision in which subjects allocate £10 between the British Red Cross (local donation) and the International Red Cross (global donation). In our initial experiment, subjects learn before the decision that one of the two recipients operates "locally in Britain" (local cue) or "in regions affected by war" (global cue). In the conceptual replication, the cue is unrelated to the donation: subjects are told that after the donation they will complete a short survey on either homelessness (local cue) or victims of war (global cue). We measure attention through an open-ended question asking whom subjects would most like to help and where these recipients are located. We measure attention before the donation decision in the initial experiment and after it in the replication.

Both our initial experiment and the conceptual replication provide evidence for giving from cues. Subjects who receive a global cue allocate significantly more to the international cause (16% in the initial experiment, 12% in the conceptual replication). Open-ended responses reveal the mechanism in both experiments: cues systematically shift which recipients come to mind, and these shifts in attention mediate the treatment effect on giving. The design variation across our initial experiment and our replication highlights the robustness of our findings along two dimensions: First, cues that are included in a decision-making context that is unrelated to the dona-

tion decision are behaviorally relevant. Second, treatment effects on donations and attention do not depend on the order in which they are elicited.

Application to fundraising appeals. We apply our framework to the design of fundraising campaigns. Group appeals—asking donors to give as part of a team, neighborhood, or community—are widely used in practice, especially in peer-to-peer and event fundraising. Major charities such as Movember, the Red Cross, Leukaemia & Blood Cancer New Zealand, and the UN World Food Programme build entire campaigns around team-based giving, and leading peer-to-peer fundraising platforms (e.g., givelively, givebutter) offer team structures as a default feature.[2] Recent research shows that such appeals can increase giving when the charity operates locally (Kessler and Milkman, 2018). Our framework predicts that, for a charity with a *global* mission, the same appeal may backfire: cueing donors' neighborhood shifts attention to local needs, making the global cause seem less compelling.

Testing this prediction cleanly in the field requires varying the localness of the appeal while holding fixed the underlying cause of the charity. This is difficult with locally operating charities, where a more local appeal often also changes the project or beneficiaries. We therefore study a charity with a global mission, which provides a sharp contrast to Kessler and Milkman (2018): we keep the local cue, while the cause is global.

We implement this test in a natural field experiment with 105,000 existing donors to a major international charity in Germany, embedding a neighborhood-based group appeal in one of the charity's regular fundraising letters. The appeal reduces the probability of signing an additional pledge by 33%. The effect is economically large: extrapolating to the full sample, the appeal cost the charity approximately 30,000€ in forgone annual pledges. Several features of the data support a cue-based interpretation. The group appeal has no effect on giving in subsequent fundraising rounds, consistent with a transient attentional shift rather than a persistent change in preferences. We replicate the backfiring effect in online experiments and show, using the same open-ended attention measure, that the group appeal strongly increases mentions of local recipients and decreases mentions of global ones.

Robustness. We discuss alternative interpretations of our results. First, if social norms drive the results, combining the group appeal with a local or global cue should amplify the effect; it does not. The effect is also not amplified by adding explicit intergroup competition. Instead, the effects are similar regardless of whether a group frame or competition is present, consistent with the direct belief channel. Second,

[2]For example, Blackbaud's Peer-to-Peer Benchmark Report (Blackbaud, 2023) covers nearly 6,400 fundraisers that mobilized more than 4.4 million participants and raised over $1.1 billion in 2020-2022. See also Appendix D.

we address experimenter demand: subjects are told that cue content was randomly assigned, the cue is implemented in two different ways across experiments, and the field experiment is embedded in the charity's normal operations with no reference to a study. Lastly, we address the concern that the group appeal may have led to diffusion of responsibility, thereby reducing giving. In our setting, informing potential donors about the behavior of other donors in the absence of the neighborhood cue actually increases giving (Oslislo and Schwerter, 2026), providing evidence against this concern.

Discussion. We discuss how our framework helps to organize empirical patterns in charitable giving and economic behavior more broadly. First, we turn to aggregate evidence on media-driven shifts in giving. Because cues raise the recall weight on states similar to them, they should crowd in giving to causes that share features with the cue and crowd out giving to causes whose features are dissimilar. We show that a growing body of evidence on how charitable giving responds to media attention, online search, and public discourse is consistent with both sides of this prediction (Eisensee and Strömberg, 2007; Brown and Minty, 2008; Perroni et al., 2022; Scharf et al., 2022; Jayaraman et al., 2023; Yildirim et al., 2024; Jaimovich et al., 2026).

Second, we discuss behavioral interventions and nudging. Evidence from meta-analyses shows that many nudges produce heterogeneous effects, and that some even backfire (Hummel and Maedche, 2019; DellaVigna and Linos, 2022); related findings have emerged for priming, where several prominent results have not replicated (Doyen et al., 2012; Open Science Collaboration, 2015; Camerer et al., 2018). Our framework offers a specific explanation for why both classes of intervention can fall short of expectations: nudges and primes operate through manipulations of the decision-making context, and may include cues that evoke cognitive material unrelated to—or working against—the intentions of the designer. This perspective can help understand backfiring findings of norm-nudging (Cialdini, 2003; Schultz et al., 2007; Richter et al., 2018) as well as the failures of priming results to replicate (Cohn et al., 2014, 2019; Rahwan et al., 2019). Our paper offers an approach that couples theory-driven cue manipulations with open-ended survey elicitations (Haaland et al., 2025) to verify rather than assume the cognitive content a cue activates.

Relation to literature. Our paper makes several contributions to the literature. First, our paper contributes to an emerging literature that brings economic models of attention, associative memory, and mental representations to field and naturally occurring settings (Webb et al., 2022; Afrouzi et al., 2024; Gennaioli et al., 2024; Sahni and Yang, 2024; Bastianello et al., 2025; Bordalo et al., 2025; Butera et al., 2025; Graeber et al., 2025). Related work develops empirical measures of attention, information acquisition, and what is top of mind in surveys and field environments

(Andre et al., 2022; Haaland et al., 2025; Andre et al., 2026a,b; Gennaioli et al., 2026). We add to this literature by showing that the same attentional mechanisms matter for prosocial choice and fundraising design.

Second, our results inform the economics of charitable giving and fundraising design (for overviews, see List, 2011; Andreoni and Payne, 2013; Vesterlund, 2017). A large body of work studies how matching schemes, rebates, seed money, and solicitation methods affect donations (e.g., List and Lucking-Reiley, 2002; Eckel and Grossman, 2003; Landry et al., 2006; Karlan and List, 2007; Eckel and Grossman, 2008; Rondeau and List, 2008; Huck and Rasul, 2011; Huck et al., 2015). Our findings highlight that the very framing of a fundraising appeal can shift giving through a belief channel that is distinct from the informational or incentive content of the appeal. This implies that fundraisers must attend not only to what their campaigns communicate but also to the associations they activate. In a world where charitable giving responds to salient events and media coverage—as documented for instance by the shift toward local giving during COVID (Jaimovich et al., 2026)—understanding how cues redirect attention across causes is essential for effective campaign design.

Third, we relate to the recent literature that studies the determinants of generosity across group boundaries (see, e.g., Lowe, 2025, for a review). Recent work shows that prolonged personal exposure to out-group members (Bursztyn et al., 2024) and narrative accounts that foster perspective-taking (Andries et al., 2025) can meaningfully shift attitudes and prosocial behavior, but these channels are high-intensity: they require sustained contact, emotionally rich information, or repeated personal experience. Our findings reveal a complementary channel that operates on a much shorter time scale. A single uninformative cue—a brief mention of a local or global context, or a reference to fellow donors in one's neighborhood—is sufficient to momentarily redirect attention and shift giving. This suggests that the mental representations underlying generosity are responsive not only to deep experiences but also to contextual features of the immediate choice environment, with implications for how short-term prosocial behavior can be redirected for better or for worse.

Fourth, our evidence contributes to the longstanding question of why prosocial behavior is so context-dependent (Levitt and List, 2007; List, 2007). Existing explanations emphasize context-dependent preferences—such as social image and pressure (Bursztyn and Jensen, 2017), self-image (Bénabou and Henkel, 2025), or warm glow (Andreoni, 1990)—that vary across settings. We provide evidence for a complementary channel: context-dependent beliefs formed through cue-driven attention. This mechanism offers a parsimonious account of several well-documented patterns, including the sensitivity of giving to framing (Eckel and Grossman, 2003), to deliberative versus affective processing (Small et al., 2007), and to the gap between prosocial behavior in the laboratory and the field.

2 Theory and evidence on giving from cues

In this section, we first present a simple framework that illustrates how cues influence charitable giving. We then investigate empirically the influence of cues using an online experiment.

2.1 Conceptual framework

We adapt the model of Bordalo et al. (2023) and Conlon and Kwon (2025) to the charitable giving context. An agent wants to donate to charity and needs to decide between donating to charity A and charity B. Charities are defined through characteristics. Characteristics capture features of the charity and of the recipients whom it helps. For simplicity, we assume that charity i is characterized by a vector of $\Theta_i = (\theta_{i1}, \theta_{i2}, \ldots, \theta_{in})$. For instance, characteristics of the charity include its degree of overhead costs or operational efficiency, while characteristics of the recipients include the severity of their need or the number of people in need.

Preferences. Agents receive utility $U(\cdot)$ from giving to a charity. We assume they care about the impact that their donation has on others. That is, their choice between charities is at least partially influenced by consequentialist concerns. The existence of such concerns is supported by a large empirical literature, which has documented that altering the consequences of donations strongly influences donation behavior. For instance, donation behavior changes based on the effectiveness of seed money (Vesterlund, 2006), or the presence of matched donations (Eckel and Grossman, 2003, 2004; Eckel et al., 2005; Meier, 2007; Karlan and Wood, 2017). This, in turn, implies that certain features of the charity and its recipients matter for people's propensity to donate. Indeed, past research has shown that giving is significantly influenced by features such as charity performance metrics (Exley, 2020), the degree of flexibility in how donations may be used (Batista et al., 2015; Li et al., 2015) and more generally by various effectiveness and efficiency measures such as overhead costs (Gneezy et al., 2014).[3] Given these beliefs, agents in our framework care about the characteristics of a charity that influence the consequences of the agent's giving. That is, their utility is influenced by Θ_i. For simplicity, we assume that characteristics are numerical, with higher values indicating more favorable outcomes from the donor's perspective (e.g., higher efficiency).

Beliefs. We further assume that agents are not perfectly certain about the realization of the characteristics for each charity. Instead, they hold (subjective) beliefs

[3] See for instance Gordon et al. (2009), Meer (2014), Yörük (2016), Brown et al. (2017), Coffman (2017), Karlan and Wood (2017), and Metzger and Günther (2019).

about them. Importantly, they are bounded in their capability to consider all possible characteristics that influence their belief. Quite naturally, charities and recipients differ on many relevant dimensions, so some might not come to mind easily. When faced with this large set of characteristics, we follow Bordalo et al. (2023) and Conlon and Kwon (2025) and assume that agents form beliefs using an associative sampling process. Formally, there is a set of possible states of the world Ω, with the likelihood of $\omega \in \Omega$ being $\pi(\omega)$. A state $\omega \in \Omega$ specifies the realizations of the characteristics of both charities, that is, $\omega = (\Theta_A, \Theta_B)$. As subjects care about the realizations, their utility from giving is state-dependent. The agent has a "mental database" of all states and likelihoods, but these are not readily available. Instead, they need to be retrieved following a sampling process. Importantly, this sampling process is influenced by cues C. That is, the probability that state ω is sampled is proportional to the context similarity $S(\omega, C)$. Assuming that the agent is naive about the influence of context, the agent's simulated distribution is then in the limit proportional to

$$\pi_s(\omega \mid C) \propto \pi(\omega) \cdot S(\omega, C). \tag{1}$$

Under no context distortions ($S(\omega, C) = 1$), the distribution reduces to the rational benchmark:

$$E[\psi(\omega)] \equiv \sum_{\omega \in \Omega} \pi(\omega)\psi(\omega) \tag{2}$$

Cues. An important dimension of how context matters in this environment is cues: a piece of text (or image, etc.) that draws attention to a specific feature but contains no informational value about it. Given that not all states are at the top of an agent's mind, a cue that simply describes a state of the world (or makes them think about it), can influence beliefs. Formally, let $\tilde{\Omega}$ be the set of all possible cues, where $C \subset \tilde{\Omega}$.

We assume an exogenous similarity function $S : \tilde{\Omega} \times \Omega \to [0, 1]$, where $S(\omega, \omega) = 1$ for all ω. $S(\omega_1, \omega_2)$ captures the degree to which ω_2 is similar to (or "associated with") the cue ω_1. We can then generalize S to apply to subsets of $\tilde{\Omega}$ and Ω by averaging pair-wise similarity. Formally, let A be a subset of $\tilde{\Omega}$ and B be a subset of Ω. Then, the similarity between A and B is given by

$$S(A, B) = \frac{1}{|A| \cdot |B|} \sum_{\tilde{\omega} \in A,\ \omega \in B} S(\tilde{\omega}, \omega). \tag{3}$$

Predictions. Since context enters beliefs only through the recall weights in (1), the effect of cues on beliefs can be characterized directly. For any state-dependent payoff object $\psi(\omega)$, define the agent's simulated expectation in context C as

$$E_s[\psi(\omega) \mid C] \equiv \sum_{\omega \in \Omega} \pi_s(\omega \mid C)\psi(\omega).$$

Using (1) and (2), simulated expectations can be written as

$$E_s[\psi(\omega) \mid C] = \frac{E[\psi(\omega)\, S(C,\omega)]}{E[S(C,\omega)]} = E[\psi(\omega)] + \frac{\mathrm{Cov}(S(C,\omega), \psi(\omega))}{E[S(C,\omega)]}.$$

Thus, cues distort beliefs whenever they are disproportionately associated with states in which $\psi(\omega)$ is high or low. In particular, a cue raises the expected value of ψ when it makes high-ψ states more likely to come to mind, and lowers it when it makes low-ψ states more salient. When C contains several cue elements $c \in C$ and similarity is aggregated as in (3), Conlon and Kwon (2025) (Proposition 1) show that the agent's beliefs are

$$E_s[\psi(\omega) \mid C] - E[\psi(\omega)] = \frac{\sum_{c \in C} W(c)\, D^{\psi}(c)}{\sum_{c \in C} W(c)}, \tag{4}$$

where $W(c) \equiv E[S(c,\omega)]$ is the baseline accessibility of cue c, and

$$D^{\psi}(c) \equiv \frac{\mathrm{Cov}(S(c,\omega), \psi(\omega))}{E[S(c,\omega)]}$$

measures how representative cue c is of states with high values of ψ.

Applied to charitable giving, let $\psi_i(\omega)$ denote the utility from donating to charity $i \in \{A, B\}$ in state ω. Define the relative attractiveness of charity B as

$$\Delta(\omega) \equiv \psi_B(\omega) - \psi_A(\omega).$$

The donor chooses charity B in context C whenever

$$E_s[\Delta(\omega) \mid C] > 0,$$

and chooses charity A whenever $E_s[\Delta(\omega) \mid C] < 0$. Absent context distortions, the choice is instead governed by the benchmark expectation $E[\Delta(\omega)]$. It follows immediately that even a cue that contains no information about either charity can still change behavior, because it changes which states come to mind. In particular, a donor who would choose charity A under the benchmark distribution, so that $E[\Delta(\omega)] < 0$, may nevertheless choose charity B in context C whenever

$$\frac{\mathrm{Cov}(S(C,\omega), \Delta(\omega))}{E[S(C,\omega)]} > -E[\Delta(\omega)].$$

This inequality formalizes the framework's key implication: a non-informative cue can shift giving from charity A to B if it disproportionately brings to mind states in which charity B performs well relative to charity A. What is brought to mind is governed by the similarity of the cue with the corresponding state of the world.

2.2 The effect of cues on donation behavior

The key prediction of the framework is that attentional cues can shift attention to specific features relevant to donation decisions even in the absence of informational value. To test this mechanism, we conduct a preregistered online experiment on Prolific with subjects living in the UK.[4] In the experiment, we vary the content of cues and investigate their impact on attention to features and donation decisions.

2.2.1 Initial experimental evidence

Our initial experimental evidence is based on a deliberately simple design. Subjects are asked to allocate a fixed budget between a local and a global charity. We introduce the charities sequentially to subjects, informing subjects that this order is implemented randomly to avoid experimenter demand concerns. The first charity serves as a cue based on which donors can form expectations about their giving decision during the experiment. In addition, we elicited donors' attention to features of the donation decision before they know about the second charity and make their donation decision.

Procedure. After providing consent, subjects were told that they would face a decision in which they could decide how much to help others, with two different recipients of the help. The cue consisted of information about one of the two recipients, which we varied between treatment conditions. In *Local cue recipient*, they received the information that "One of the recipients is a charity that is operating locally in Britain", while in *Global cue recipient* they received the information that "One of the recipients is a charity that is operating in regions affected by war." They were also (truthfully) told that the computer randomly selected one of the two recipients to be mentioned at this stage.

Attention measure. Afterwards, subjects were asked to answer the following open-ended text question: *"From the top of your mind: whom would you like to help? Assume it is up to you and you could choose any person or group of people to be the recipient(s) of your help. Please be specific about who is the recipient and where the recipients are located"*. Specifically, in two input fields subjects could indicate the types of recipients and where they are located. This procedure allows us to capture subjects' considerations that are at the top of their mind prior to making their decision, without being primed on any specific mechanism or argument. By making the question open-ended, we obtain a detailed lens into subjects' thoughts and considerations (Haaland et al., 2025). As such, they are a useful measure for subjects' attention to features.

[4] See Appendix Section E for the mapping between preregistration and experiment for this and all following experiments.

Donation decision. Subjects then made a donation decision between two charities. They were given £10 to divide between the British Red Cross and the International Red Cross in increments of £2. The British Red Cross provides health care and disaster relief to people living in Britain, and the International Red Cross does the same around the world. We chose the Red Cross as the recipient because it is a well-known charity, and it allows us to vary the location of potential recipients while keeping the cause of the donation reasonably similar. The choice thus involves a direct tradeoff between donating to a local cause and donating to a global cause. In the following, we code higher values as the amount of the donation made to the International Red Cross.

Importantly, as the subjects received detailed information about the two charities on the decision screen, the cue they received prior to the decision contained no informational value for the decision itself. However, it might shift subjects' attention regarding recipient features, which according to our framework influences which states come to mind during the decision.

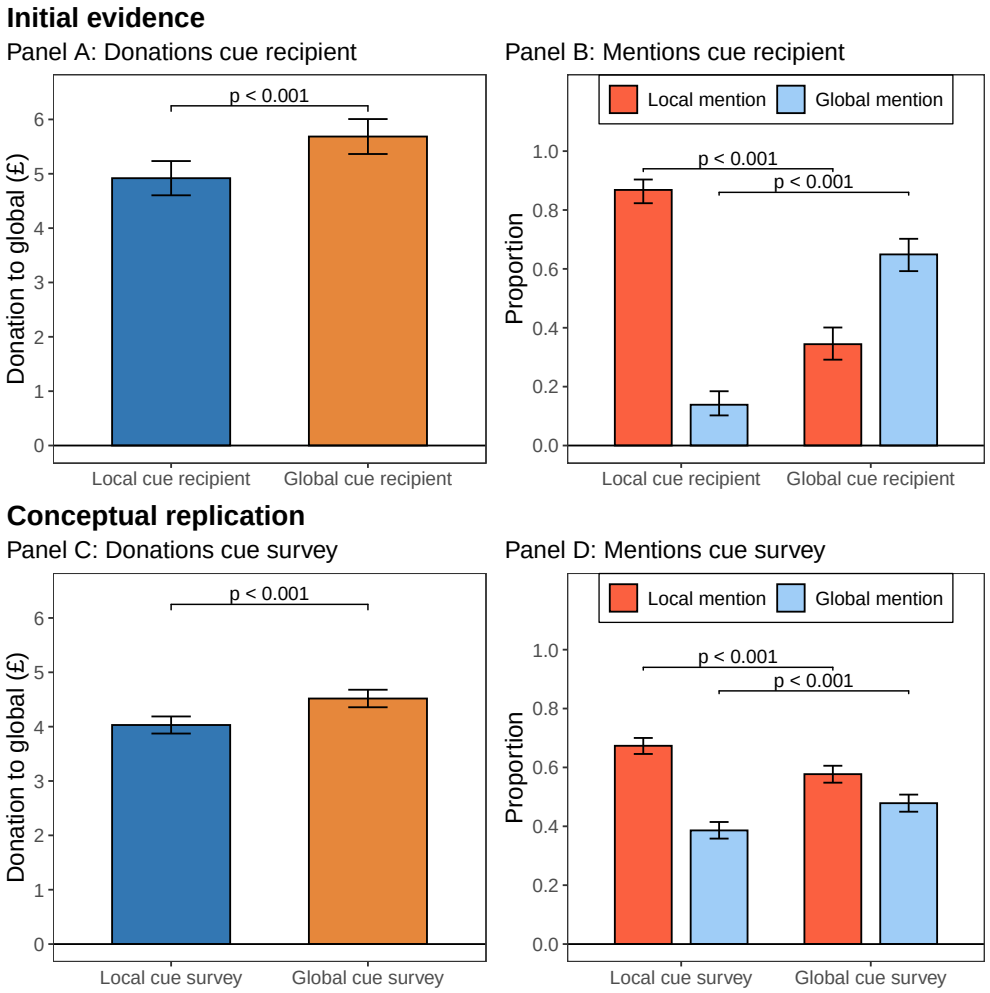
Sample. In total, 601 subjects participated in the experiment: 305 in *Global cue recipient*, and 296 in *Local cue recipient*. Participants were adults living in the United Kingdom recruited via Prolific. This and all following online experiments used oTree (Chen et al., 2016) for the graphical user interface and were pre-registered. See Appendix E for details. The instructions can be found in Appendix F. Subjects spent a median time of 3 minutes in the experiment and received £0.5 as compensation, equivalent to an hourly wage of $13. We implemented the donation choice of one out of 25 subjects (between-subject random incentivized system).

Results. First, we focus on subjects' donation decisions. Panel A of Figure 1 shows the result. In *Local cue recipient*, subjects donate on average £4.92 to the International Red Cross. In contrast, in *Global cue recipient*, subjects donate on average £5.69. The global cue thus increases donations to a global cause relative to a national one by 16%, a significant increase ($p < 0.001$, t-test). For the distribution of decisions, see Appendix Figure A.1.

Second, we turn to the mechanism behind the result. According to our framework, the cue shifts attention to different features. We analyze subjects' open-ended responses to measure what is on top of their mind before they make the donation decision. Panel B of Figure 1 shows the results of analyzing subjects' open-ended responses.[5] In *Local cue recipient*, 87% of subjects mention a local recipient, while 14% mention a global recipient. In contrast, in *Global cue recipient*, 34% of subjects mention a local recipient and 65% mention a global recipient. Thus, the change in the cue changes attention: cueing local recipients increases attention to local causes

[5]See Appendix C for details on the coding procedure.

Figure 1: The effect of cues on donation behavior



Notes: **Panel A** displays the treatment effect of varying the content of the cue between the *Local cue recipient* and *Global cue recipient* conditions on donation behavior. The outcome variable denotes the amount of money (out of £10) that subjects allocate to the International Red Cross instead of the British Red Cross. **Panel B** displays the effect of the treatment variation on open-ended text responses. "Global mention" and "Local mention" are indicator variables equal to one if a subject mentions a globally located recipient and a locally located recipient, respectively. **Panel C** and **Panel D** show the treatment effect of *Local cue survey* and *Global cue survey* conditions on donation behavior and text responses, with variables defined as in Panels A and B. Error bars indicate 95% confidence intervals. P-values are obtained from two-sample t-tests (Panels A and C) or tests of proportions (Panel B and D).

and decreases attention to global ones relative to cueing global recipients, which in both cases constitutes a significant difference ($p < 0.001$, two-sample test of proportions). Importantly, the mentions in the question are systematically related to choices: we find that subjects who mention a local recipient donate £2.02 less to the International Red Cross than those who do not ($p < 0.001$, t-test). Subjects who mention a global recipient donate £2.22 more than those who do not ($p < 0.001$, t-test). Interestingly, the treatment effect is entirely mediated by the open-ended responses: when controlling for either local or global mentions in an OLS regression, the treatment effect disappears (see Appendix Table B.1 for details).

2.2.2 Conceptual replication

Next, we explore the robustness of our results. In the previous experiment, the cue was directly related to the decision, and attention was measured prior to the decision. In a second experiment, subjects received a cue entirely unrelated to the decision and we elicited their attention to features after their donation decision.

Procedure. After providing consent, subjects were instructed that the study consisted of two parts that were independent of each other. They were told two things: The first part consisted of a decision in which they could decide how much to help others. The second part consisted of a survey about a certain topic. We varied between treatment conditions the topic of the survey. In the *Local cue survey* condition, subjects were told "You complete a survey about homelessness." In the *Global cue survey* condition, they were told: "You complete a survey about victims of war." They were furthermore (truthfully) told that the computer randomly selected the topic of the survey out of two alternatives. Consequently, by mentioning the topic of the survey, we cue subjects' attention towards local or global need. In our second experiment, however, cues are not related to subjects' donation decision.

Decision and attention measure. Subjects faced the same donation decision as in the previous experiment. After their decision, we elicited attention via an open-ended question asking what other Prolific participants brought to mind when facing the same choice.[6] This second-order elicitation differs from the one used in Section 2.2.1 in two ways: it is measured after rather than before the decision, and it asks about others rather than the self. Asking about others sidesteps social-desirability concerns (Prelec, 2004). At the same time, under standard social projection (Ross et al., 1977), beliefs about others' mental content are informative about one's own: if the cue shifts what subjects expect others to retrieve, it is most naturally because it has shifted their own retrieval.

Sample. In total, 2,342 subjects participated in the two conditions, 1,176 in *Local cue survey*, and 1,166 in *Global cue survey*. All other implementation details are as in the previous experiment.

Results. We focus first on subjects' donation decisions. Panel C of Figure 1 shows the result. While subjects in *Local cue survey* donated on average £4.03 to the International Red Cross, they donated £4.52 in *Global cue survey*. Donations to the

[6]Subjects were told that other Prolific participants previously faced the same donation decision and, before seeing the recipients, were asked the following question: "From the top of your mind: whom would you like to help? Assume it is up to you and you could choose any person or group of people to be the recipient(s) of your help. Please be specific about who is the recipient and where the recipients are located." Subjects then stated their best guess about the types of recipients those other participants mentioned and where they are located.

International Red Cross thus increased by 12%, a significant difference ($p < 0.001$, t-test). For the distribution of decisions, see Appendix Figure A.2.

Next, we turn to the treatment effect on attention to features. Panel D of Figure 1 shows that we also replicate the effect on attention: If the topic of the survey was about a local feature (homelessness), 67% of subjects mentioned a local recipient, while 39% mentioned a global recipient. Mentioning that the topic was instead about a global feature (victims of war) reduced local mentions to 58%, while global mentions increased to 48% (both cases $p < 0.001$, two-sample test of proportions). Again, mentions predicted behavior, with local mentions associated with 37% lower international donations and global mentions associated with 59% higher international donations (both $p < 0.001$, two-sample t-test). Mentions in the open-ended question are thus again strongly associated with donation behavior. For regression results replicating these associations, see Appendix Table B.2.

Taken together, the two experiments provide evidence for our framework's prediction: uninformative cues shift attention, which shifts giving.

3 Application: fundraising appeals

We now apply our cue-based framework to the design of fundraising campaigns—a major source of private giving for public goods and humanitarian causes. When planning a fundraising campaign, fundraising managers need to carefully design their appeal to potential donors. One widespread strategy is to appeal to individual donors as part of a larger group of people. Fundraising managers seem optimistic about the potential of such a strategy and often use group appeals and team settings, see Appendix D for real-world examples. Indeed, recent research has shown that appealing to donors as part of a group has the potential to significantly increase giving (Kessler and Milkman, 2018; Charness and Holder, 2019). Proposed mechanisms are that the appeal primes a facet of their identity associated with a norm of generosity or causes donors to give because they do not want to "let their team down."

Our framework suggests that such appeals may be unstable. Depending on the appeal's content and type of recipients, attention might be shifted to features that are not favorable for giving to the specific cause. That is, the appeal induces features to come to mind that reduce rather than increase giving, leading to a backfiring effect. We document such an effect in a large-scale controlled natural field experiment that employed a group appeal aimed at increasing giving. We then replicate the effect in an online experiment and provide evidence on attention being the underlying mechanism.

3.1 Field experiment

3.1.1 Setting and experimental design

Setting. We partnered with a well-known nonprofit organization that focuses on humanitarian and development aid worldwide. We worked with the German branch of this NGO, which regularly uses fundraising letters to solicit donations from private donors for its global cause. For the experiment, we randomized the content of the letters as part of a regular fundraising round for the charity. The purpose of the letter was to motivate individuals who actively and regularly donate to the charity to sign another pledge in addition to their existing one. Specifically, donors were asked to sign an Emergency Response Sponsorship, which enables the organization's staff to quickly and effectively help children in emergency situations around the world. The one-page solicitation letters were sent in three waves at different times between June and August 2021.

Sample. Our sample frame consists of 105,318 individuals in Germany. Each individual has donated to the charity in the past and has made an ongoing commitment to donate a certain amount of money to the organization on a regular basis. All individuals have agreed to be contacted by the organization for future fundraising rounds and are part of the charity's pledge file. On average, individuals in our sample donate 172€ per year to the organization as part of their regular commitment (median 120€) and have been donors for an average of 16 years. Overall, 51% are male and 19% were originally acquired through face-to-face fundraising, with the remainder acquired through other acquisition channels. In addition, the average population of the ZIP code they live in is 18,540, with 13% living in a city of >1 million.

Treatments. As part of the experiment, we randomly assigned individuals to receive letters that differed slightly in wording. Specifically, donors assigned to the treatment group received a group appeal (*Group appeal*), while donors assigned to the control group received a standard individual appeal (*Control*). The wording was varied in two places: (a) the headline at the top of the letter, and (b) the last paragraph of the letter, which repeated the headline in slightly different words. In all other respects, the letters were identical.

In the *Control* condition, the headline was "Emergency Helpers needed." In the *Group appeal* treatment, the headline read "Emergency Helpers from <ZIP Code + Region> needed! We are looking for generous neighborhoods."[7] The last paragraph

[7]Because potential donors agreed to be contacted by direct mail fundraising campaigns, the organization had address information readily available. Since the donor's address is also printed in the address field at the top of the letter, forming teams based on regional affiliation should not seem strange to donors.

of the letter repeated the appeal with different wording. Most importantly, the wording in the *Group appeal* treatment emphasized that donations would be made "as a team together with other donors from <ZIP Code + Region>." In contrast, the *Control* treatment made no reference to the subjects' region or other donors. The *Group appeal* treatment had a further variation in which a subset of the letters contained an explicit notion of group competition that was added to the wording of the *Group appeal* treatment. For our main analysis, we pool both variations of the treatment and return to the analysis of differences within the treatment in Section 4.1.1.

The rest of the letter, written and designed by the organization, followed their typical fundraising practices, drawing attention to pressing development issues and the work of the organization's staff in the field. The letters also included a link and QR codes that directed recipients to the organization's general home page (see the Appendix F for the exact wording of the letters). Of the individuals in our sample, 28% had previously provided their email address to the organization. They received an additional email two weeks after the solicitation letters were sent. The email was a digitized version of the solicitation letter, with the subject line being the treatment-specific appeal.

Treatment assignment. In total, 38,414 subjects (36% of the sample) were part of the *Control* condition, while 66,904 subjects (64%) were part of the *Group appeal* treatment. When assigning treatment status, we balanced potentially relevant donor baseline characteristics following Athey and Imbens (2017). For balancing, we first divided the population into small strata according to six baseline variables: subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, and the years they have been a donor. These variables have been previously found to be associated with donation behavior in our sample, and therefore we randomized within the strata for each of the three waves. To check the effectiveness of randomization in generating treatment and control assignments orthogonal to our baseline information, see Appendix Table B.4. As expected, both conditions are balanced on baseline variables.

3.1.2 Results

Variables. For the analysis, we focus on two outcome variables: first, we examine the treatment effect on donation incidence, a binary variable that equals one if a subject signs a pledge as a result of the letter and zero otherwise (extensive margin). Second, we examine the average amount donated per subject, which captures the

Table 1: The effect of the group appeal on donation behavior in the field experiment

	Dependent variable:			
	Donation Probability		Donation Size	
	(1)	(2)	(3)	(4)
Group appeal	-0.093^{***}	-0.086^{***}	-0.285^{***}	-0.267^{**}
	(0.032)	(0.032)	(0.110)	(0.107)
Constant (*Control*)	0.281^{***}		0.665^{***}	
	(0.027)		(0.101)	
Controls	No	Yes	No	Yes
Observations	105,318	105,318	105,318	105,318

Notes: The table shows OLS estimates. The dependent variable in columns (1) and (2) is a variable equal to 100 if a subject signs the annual pledge solicited in the fundraising letter and zero otherwise and in columns (3) and (4) the amount in Euro that is pledged. "*Group appeal*" is equal to 1 when the subject is part of the *Group appeal* treatment and zero if the subject is part of the *Control* condition. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, the years they have been a donor as well as wave fixed effects. See Appendix Table B.5 for all coefficients. Robust standard errors in parentheses. Significance levels: *p$<$0.1, **p$<$0.05 and ***p$<$0.01.

aggregate effect of the letter on giving behavior (extensive + intensive margin).[8] Our pledge request is for a regular giving commitment, so donation size refers to the annual amount a subject gives to the charity.

Result. Table 1 presents our results. In response to the letter, 0.28% of subjects in the *Control* condition signed the annual pledge. This percentage dropped to 0.19% in the *Group appeal* condition (column 1), an effect that is robust to the inclusion of controls (column 2). Thus, the group appeal in the letter decreased the probability that subjects would donate by 33%, a significant decrease ($p = 0.003$, two-sample test of proportions). Moreover, the group appeal decreased the total amount of donations. While subjects in *Control* donated an average of 0.66€ annually, they donated 0.38€ in *Group appeal*, a decrease of 43% (columns 3 and 4). Extrapolating these averages, the result implies that the charity could have raised 70,019€ in annual donations from donors with its standard letter, but ended up raising only 50,975€. Using the group appeal for the entire group of subjects would have further reduced the amount to 40,040€. Thus, the small change in the wording of the letter had a significant impact on the amount of money the charity raised.

[8]Note that the intensive-margin effect is not separately identified in our design due to a potential selection effect on the extensive margin.

Robustness. We perform several exercises to ensure that the observed treatment effect is robust to the choice of the regression model and outliers. First, we rerun the OLS regression on the probability of donation using a probit regression, replicating the negative effect (see Appendix Table B.6). Second, we rerun the regression on total donations (i) excluding outliers identified by a Cook's distance of $1/4N$, and (ii) using log donations. We obtain a significant negative treatment effect in both cases (see Appendix Table B.7).

Mechanism. According to our framework, the mechanism behind the backfiring effect is that the appeal channeled donors' attention to local features so that these states came to mind when making the decision. However, we naturally cannot observe attention in the field setting. Yet, an implication of our framework is that cue-based attention effects should be short-lived. This implies we should not observe any long-run effects of the cue on follow-up donation behavior. To investigate this, we analyzed the donation behavior of our experimental sample for the next six fundraising rounds of the charity. We indeed find no long-lasting effects of the group appeal on follow-up behavior; see Appendix Table B.8 for details. In particular, neither the probability of giving nor the total amount given differed between our treatment and control condition in response to the next fundraising letter. If anything, the group appeal led to a small increase in both. We also found no treatment effect when looking at whether subjects donated in response to any of the next six fundraising appeals, or the total amount they donated over the next six rounds. Similarly, there was no effect on termination rates, i.e., whether they canceled their pledge in response to our intervention. These results support the notion of an attentional effect that is present at the time of decision and is short-lived.[9]

3.2 Online experiment

The previous section showed the negative effect of group appeals on giving behavior in a natural field experiment. Our framework suggests that the group appeal acted as a cue that may have led donors to focus their attention on local issues related to their region or country. This, in turn, may have decreased donations. However, in the field we do not observe what potential donors pay attention to during their decision, or what they consider as alternatives to donating.

To provide direct evidence that group appeals involving local recipients shift attention, we use a similar experimental setup as in 2.2. Specifically, we focus on four conditions. The conditions *Individual cue* and *Group cue* test whether the effect of

[9]This also speaks against the concern that the appeal contains implicit information about the quality of the organization or its projects. If potential donors updated negatively about the quality, this would imply negative long-term effects.

group appeals found in the field experiment replicates in our online experiment environment. The conditions *Individual cue free form* and *Group cue free form* then provide evidence on the role of attention to features as mechanism.

3.2.1 Experimental design

Procedure. After providing consent, subjects were informed that they would face a decision in which they could decide how much to help others. At this stage, we varied between conditions whether subjects received a group appeal or a neutral framing. In the *Group cue* and *Group cue free form* conditions, subjects were told that they form a group with other participants who live in the same UK postcode area, closely mimicking the group appeal of the field experiment:

> This survey is fielded to people who live in [UK postcode area][10] and are active on Prolific. You and the other people from [UK postcode area] who participate in this Prolific survey form a group. Your group faces a decision, which will be explained on the next pages.

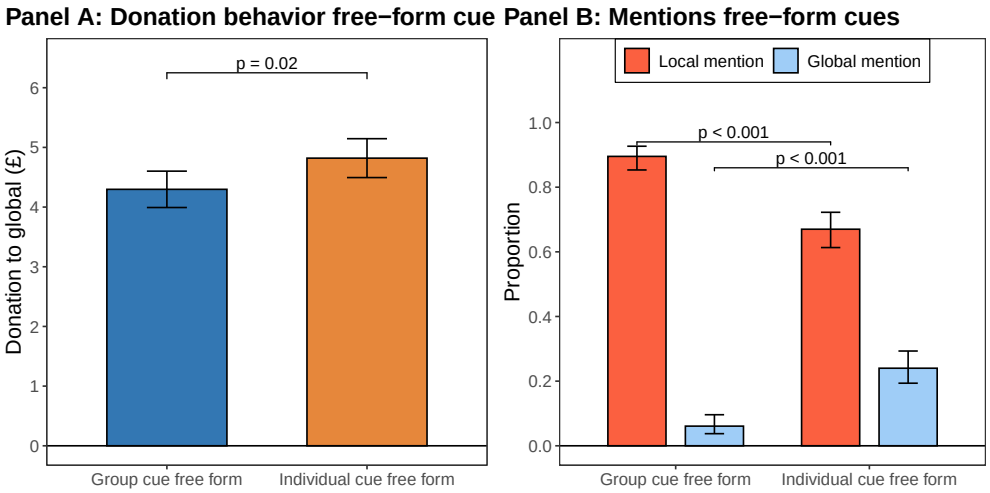
In the *Individual cue* and *Individual cue free form* conditions, subjects were simply told that they face a decision. In the two free-form conditions, subjects were then asked the same open-ended text question as in Section 2.2.1, eliciting whom they would like to help and where the recipients are located, before learning about the charities. Subjects then received information about their endowment and made the same donation decision between the British Red Cross and the International Red Cross as in Section 2.2.1. We maintained the group versus neutral framing throughout the donation screen: in the group conditions, subjects were asked to contribute to "your group's donation," while in the individual conditions, the framing was neutral. The instructions can be found in Appendix F.

Attention measure. In the conditions *Individual cue free form* and *Group cue free form*, subjects were asked the same open-ended text question as in the initial experimental evidence described in Section 2.2.1. That is, prior to the donation decision, subjects could indicate which person or group of people they would like to help and where the recipients would be located if it was up to them to choose whom to help.

Decision. Afterwards, subjects received information about their endowment and the incentives, and then made the donation decision. Subjects faced the same donation decision between the British Red Cross and the International Red Cross as in the conditions described in Section 2.2.1. We maintained the group versus neutral

[10] On average, around 500,000 people live in a UK postcode area, which is the first one or two letters of a postcode.

Figure 2: The effect of the group appeal on donation behavior in the online experiment



Notes: **Panel A** displays the treatment effect of varying the content of the cue between the *Group cue free form* and *Individual cue free form* conditions on donation behavior. The outcome variable denotes the amount of money (out of £10) that subjects allocate to the International Red Cross instead of the British Red Cross. **Panel B** displays the effect of the treatment variation on open-ended text responses. "Global mention" and "Local mention" are indicator variables equal to one if a subject mentions a globally located recipient and a locally located recipient, respectively. Error bars indicate 95% confidence intervals. P-values are obtained from two-sample t-tests (Panels A) or tests of proportions (Panel B).

framing throughout. Thus, as in the field experiment, subjects were asked to donate either in a neutral framing or in the presence of a group appeal.

Sample. In total, 1,193 subjects participated in the conditions: 297 in *Individual cue*, 300 in *Group cue*, 296 in *Individual cue free form*, and 300 in *Group cue free form*. All other implementation details are as in the experiments described in Section 2.2.

3.2.2 Results

Treatment effect on donations. We find a negative effect of the group cue on giving to a global cause in both treatment comparisons. In *Individual cue*, subjects donated on average £4.96 to the International Red Cross. In contrast, in *Group cue*, subjects donated on average £4.52. The group appeal thus decreased donations to a global cause relative to a national one by 9%, a significant decrease ($p = 0.039$, t-test). Figure 2 Panel A then shows the effect of the group appeal in the conditions where subjects answered the open-ended question prior to the decision. Again the group appeal has a negative effect on donations to global causes, as subjects' donations decreased from £4.82 in *Individual cue free form* to £4.30 in *Group cue free form* ($p = 0.021$, t-test). For the distribution of decisions, see Appendix Figure A.3. Accordingly, we replicate the finding of the field experiment also in our online experiment.

Treatment effect on attention to features. As Figure 2 Panel B shows, in the absence of the group appeal (*Individual cue free form*), 67% of subjects mentioned

a local recipient, while 24% mentioned a global recipient. When the group appeal was provided before the open-ended question (*Group cue free form*), 90% of subjects mentioned a local recipient and only 6% mentioned a global recipient. Thus, the appeal increased attention to local causes and decreased attention to global causes (both cases $p < 0.001$, two-sample test of proportions). As before, we find that mentions are strongly associated with choices. Subjects who mentioned a local recipient donated £2.17 (34%) less to the International Red Cross than those who did not ($p < 0.001$, t-test). Subjects who mentioned a global recipient donated £2.56 (61%) more than those who did not ($p < 0.001$, t-test).

We thus replicate the negative effect of the group appeal on giving to a global cause and show that the likely mechanism is a shift in attention to local features.

4 Robustness

In this section, we consider alternative interpretations of our findings.

4.1 Cue-based conformity and social norms

A possible alternative explanation for the backfiring effect of group appeals in our setting is that instead of working through cue-based attention to features, the appeal induces conformity to a social norm, e.g., by activating an identity association. Indeed, in the field experiment, the charity's initial goal was to prime the recipients' identity as donors, activating a norm of giving. For this purpose, the appeal explicitly stated that the subjects form a group with other regular donors, who have a stronger descriptive (and plausibly also injunctive) norm to donate relative to the general population. However, activating such a giving norm should increase donations, while we find a decrease. Hence, such an identity association cannot account for our findings.

Alternatively, the group appeal may have instead induced conformity to a different facet of people's identity: their identification with their local community. This, in turn, may then increase generosity towards local causes at the expense of generosity towards global causes. However, the fact that our attentional variable mediates the treatment effect in the online experiment suggests that the effect cannot be entirely driven by invoking a different norm, and instead has to work at least partially through attention. Next, we provide evidence from additional treatment conditions from both the field and online experiments against identity-based conformity driving our results.

4.1.1 Additional evidence from field experiment

Our field experiment provides two pieces of evidence against the conformity concern. The first comes from an additional treatment that plausibly increases identity-based conformity; the second comes from analyzing the heterogeneity of our treatment effect.

Identity-invoking treatment. One prediction of identity models is that donors should respond to treatment variations that invoke identity-based conformity. Our field experiment allows us to test this hypothesis, as it features an exogenous manipulation of identity strength within the *Group appeal* treatment. In total, 28,328 of the 66,904 subjects who were part of the treatment were assigned to the *Group competition* condition. In addition to containing the group appeal, this condition featured a neighborhood tournament: the fundraising letter announced that the "most generous neighborhoods" would be recognized by being featured on the organization's website and social media. Accordingly, this additional feature plausibly increases identity strength through explicit intergroup competition. However, as Table 2 shows, there is no significant difference between the mere group appeal (labeled here *Group appeal no competition*) and the appeal with intergroup competition.[11]

Heterogeneous treatment effects. Another prediction of identity models is that we should expect the neighborhood fundraising appeal to be more effective for donors who are hypothesized to identify most strongly with their group.[12] According to Kessler and Milkman (2018), these should be people living in smaller regions, as they care more and identify more strongly with their local community. Thus, if the negative treatment effects were driven by stronger local norm conformity, we should observe a stronger negative effect in smaller regions. To test this, we interact our treatment dummy with the logarithm of the population size of the donor's region. As Appendix Table B.9 shows, we find no evidence that the negative group appeal effect is stronger in smaller regions. If anything, the effect goes in the opposite direction, being stronger in larger regions, although this effect is only marginally significant in one of the specifications.

4.1.2 Evidence from additional online experiment conditions

In the context of the online experiment, we can investigate the interaction between group appeals and cues to disentangle norm conformity from attention to features.

[11]The *Group appeal no competition* conditions retains a significant treatment effect when tested against the *Control* condition, see Appendix Table E.4.

[12]Previous research has shown that the effectiveness of identity-based norm primes varies as a function of the strength of the individual's identification with the invoked identity (Eckel and Grossman, 2005; Goette et al., 2012).

Table 2: Field experiment treatment effect of explicit group competition on donation behavior within the *Group appeal* condition

	Dependent variable:			
	Donation Probability		Donation Size	
	(1)	(2)	(3)	(4)
Group competition	−0.021	−0.011	−0.054	−0.030
	(0.034)	(0.036)	(0.088)	(0.091)
Constant (*Group appeal no competition*)	0.197***		0.403***	
	(0.023)		(0.060)	
Controls	No	Yes	No	Yes
Observations	66,904	66,904	66,904	66,904

Notes: The table shows OLS estimates. The dependent variable in columns (1) and (2) is a variable equal to 100 if a subject signs the annual pledge solicited in the fundraising letter and zero otherwise and in columns (3) and (4) the amount in Euro that is pledged. "*Group competition*" is equal to 1 when the subject is part of the *Group competition* treatment and zero if the subject is part of the *Group appeal* condition without the additional competition element. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, the years they have been a donor as well as wave fixed effects. Robust standard errors in parentheses. Significance levels: *p<0.1, **p<0.05 and ***p<0.01.

Specifically, the robustness experiment covered in Section 2.2.2 included two additional conditions. In these, we combined the local versus global cue with the same group appeal that we used in Section 3.2. This allows us to compare the effect of cues in the presence and absence of a group appeal.

Design. In the two conditions, labeled *Local cue + group cue* and *Global cue + group cue*, subjects were told that they form a group with other participants who live in the same UK postcode region. In *Local cue + group cue*, they then learned that after the donation decision they would complete a survey about homelessness, while in *Global cue + group cue*, they learned that the survey would be about victims of war. The cue text was exactly the same as in the previously described *Local cue* and *Global cue* conditions (Section 2.2.2), as were the remaining procedural details. In total, 1,159 subjects participated in the *Local cue + group cue* condition and 1,157 in *Global cue + group cue*.

Results. We find that in *Local cue + group cue*, subjects donate on average £4.10 to the International Red Cross. Compared to the *Local cue* treatment (£4.03), this is a small and non-significant difference ($p = 0.55$, t-test). In *Global cue + group cue*, subjects donate on average £4.71, which again is a non-significant difference relative to the corresponding giving of £4.52 in *Global cue*, which features the same cue but no group appeal ($p = 0.10$, t-test). Indeed, interacting the two treatments yields a small and statistically insignificant interaction effect (see Appendix Table

B.3). Accordingly, embedding the cues within a group frame does not affect donation behavior beyond the direct effect of the cues.

4.2 Experimenter demand effects

Next, we discuss the possibility that our results are driven by experimenter demand effects, i.e., participants try to predict the experiment's goal from the instructions and change their responses accordingly. Importantly, these effects cannot operate in our field experiment, as the experiment was embedded in the normal operations of the charity. There is no reference to a scientific study, and thus experimenter demand effects cannot explain our treatment effect. In our online experiment, we made several design choices to minimize the scope for experimenter demand effects. First, the cues are implemented implicitly as part of the instructions, and not mentioned explicitly. For instance, in one experiment subjects learn that one of the two recipient charities operates in a specific location — a detail that is part of the decision itself. In another, subjects are merely told that a subsequent, unrelated survey will cover a particular topic — a detail that belongs to the study's structure, not the donation decision. Despite these differences in how the cue is embedded, both designs produce the same pattern of results. Moreover, we explicitly mention that the cue was randomly assigned. The fact that we then replicate the group appeal treatment effect found in the field experiment in our online experiment suggests that experimenter demand effects play a limited role in the online setting as well, in line with recent evidence that experimenter demand effects have limited if any influence on response behavior even if explicitly prompted (De Quidt et al., 2018; Mummolo and Peterson, 2019; Winichakul et al., 2024). Lastly, we find that our treatment effects are driven by those who pay attention to features, as revealed by the responses to the open-ended question. This heterogeneity effect cannot be explained by experimenter demand effects.

4.3 Diffusion of responsibility

A possible alternative explanation for the negative effect of the group appeal is that approaching donors as part of a group makes the involvement of other donors more salient, leading to a reduced sense of personal responsibility. If individuals perceive the contributions of other donors as substitutes, this may lead to moral transgressions (Bartling and Fischbacher, 2012; Falk et al., 2020). Similarly, increasing the salience of others' involvement may trigger a "bystander effect" that reduces the likelihood that individuals will help (Darley and Latané, 1968; Cryder and Loewenstein, 2012). While this effect is certainly relevant in many settings of moral decision making, it is unlikely to drive behavior in our setting because the content of the fundraising

letters makes it clear, even in *Control*, that the letters were also sent to other regular donors.

Moreover, Oslislo and Schwerter (2026) provide direct evidence that providing information about the giving behavior of other donors *increases* giving using the same sample of regular donors as in our field experiment. In their experiment, subjects receive information about the progress of the campaign toward a specific campaign goal. Across conditions, the progress toward the goal is varied. Importantly, this information is provided without the neighborhood cue or any other local mentions. Oslislo and Schwerter (2026) then find that all goal interventions, whether the amount donated is close to the goal or far from it, increase giving relative to a control in which no information was provided. If diffusion of responsibility were driving the effect, especially the intervention where the amount is close to the goal should have reduced further giving. Generally, these results show that the mere mention of others inducing diffusion of responsibility is unlikely to explain the negative effect on giving in our setting and they further highlight the importance of the explicit neighborhood cue.

5 Discussion

We discuss how our framework helps to organize empirical patterns in charitable giving and prosocial behavior more broadly. We focus on aggregate evidence on media-driven shifts in giving, the literature on descriptive norms and norm-nudging, and recent work using priming.

5.1 Media salience and transient shifts in giving

Our framework speaks directly to a body of empirical evidence on how media attention, online search, and public discourse shape charitable giving. The relevant prediction follows from the recall mechanism: a cue raises the weight on states similar to it, so cues should redistribute giving along similarity lines, crowding in donations to causes whose features are similar to the cue and crowding out donations to causes whose features are dissimilar.

The first half of the prediction has the following support. Brown and Minty (2008) document that media coverage of the 2004 Indian Ocean tsunami substantially raised online donations to relief organizations. Eisensee and Strömberg (2007) show, in the context of U.S. disaster relief, that responses to disasters depend on whether they compete with other newsworthy events: disasters that arrive during news droughts attract more aid. Jayaraman et al. (2023) document that giving to natural disasters is concentrated on the subset of disasters that attract organized fundraising and media

coverage, rather than tracking severity per se. Scharf et al. (2022) show, using UK fundraising telethons, that on-air appeals substantially raise giving to featured charities, with the effect concentrated immediately after the appeal and decaying quickly thereafter. Across these settings, exogenous increases in the salience of a particular cause raise giving to charities whose missions are similar to it.

The second half of the prediction is also supported. Perroni et al. (2022) use Google Trends to show that increases in online attention to a given issue over time are associated with more donations to charities with missions related to the issue and with less donations to charities with unrelated missions. Yildirim et al. (2024) document a sharper pattern: foreign natural disasters that draw media attention toward humanitarian causes raise donations to disaster relief while simultaneously reducing donations to political campaigns, and political advertising shocks generate a mirror-image crowding out of charitable giving. Jaimovich et al. (2026) show that rising local pandemic salience during COVID-19 redirected charitable donations from global to local causes, generating short-term substitution effects along the dimension that the prevailing cue made salient.

These patterns are the field-level analogue of our experimental results. The same cognitive process that shifts a few pounds in a Prolific decision when a survey topic is mentioned may drive sizeable cross-cause swings in giving when news cycles change. Anticipating which cause attributes a given cue retrieves, and which alternatives are accessible in donors' choice sets, is a prerequisite for predicting the sign and magnitude of any communication strategy.

5.2 Norm nudging

Our framework also helps organize a broader set of backfiring results in the literature on norm interventions. Information about norms may not only be processed as pure signals of how others behave or of which behavior they approve. Instead, it may also bring to mind examples, categories, and comparison standards. An intervention may thus backfire if the cue in the norm message is more strongly associated with states that favor the unintended action than with states that favor the action the designer intends to promote.

This perspective sheds light on classic boomerang effects in environmental behavior. Cialdini (2003) argues that messages emphasizing the prevalence of an undesirable behavior can be self-undermining because, within the statement that many people are doing something undesirable, the psychologically powerful descriptive implication may simply be that many people are doing it. Schultz et al. (2007) show this effect empirically in a field experiment on household energy use. Informing households about average neighborhood consumption reduced usage among above-

average consumers but increased it among below-average consumers; adding an injunctive message of approval or disapproval eliminated this boomerang effect. In our terms, descriptive feedback made the average or high-use state salient for already low-use households, whereas the injunctive message restored attention to the evaluative dimension the intervention was meant to activate.

Richter et al. (2018) provide close evidence for the mechanism we emphasize. In supermarket field interventions, signs intended to increase the purchase of sustainably labeled seafood failed to raise the sustainable share and in one case even reduced it. At the same time, the interventions increased general seafood purchases. Their follow-up evidence suggests that the signs primarily cued the product category seafood rather than the attribute sustainable. This is precisely the kind of cueing failure highlighted by our framework: the intervention brought the wrong object to mind. The result is not that social information has no effect, but that it can shift accessibility toward a broader or different category than the one the intervention designer intends to promote.

Our contribution to this literature is to isolate this cue-based channel experimentally and show the attentional mechanism behind it. Our evidence suggests that some failures of norm communication may arise because the message draws attention to unintended features. For intervention design, this implies that successful pretesting should ask not only whether people understand a message, but also what it makes salient. A carefully designed message that draws attention to the intended features while avoiding attention to unintended features may not only avoid backfiring but also generally increase the overall effectiveness of the message. Indeed, as Allcott and Rogers (2014) argue, what makes home energy reports effective in changing energy consumption may not only be the information conveyed by personalized reports and social comparisons but also the fact that they draw attention to energy use itself. To test for the role of attention, the open-ended responses used in our online experiment may be particularly useful for capturing what comes to mind when receiving communications involving norms and social comparisons. They could thus serve as a powerful tool to support the design of norm messages.

5.3 Priming and the activation of cognitive content

Priming has been a useful tool for identifying cognitive channels in economic behavior. Studies in this tradition show that priming social identity shifts intertemporal and risk choices in line with category norms (Benjamin et al., 2010), that priming criminal identity raises rule violation among inmates (Cohn et al., 2015b), that priming professional identity changes honesty among bank employees (Cohn et al., 2014), and that priming financial states induces countercyclical risk aversion among

financial professionals (Cohn et al., 2015a); Cohn and Maréchal (2016) provide an overview. At the same time, several high-profile priming results have not replicated in preregistered tests, raising concerns about the robustness of this approach (Doyen et al., 2012; Open Science Collaboration, 2015; Camerer et al., 2018; Rahwan et al., 2019).

The exchange around Cohn et al. (2014) on dishonesty in the banking industry, where Rahwan et al. (2019) reported a non-replication across five populations, is instructive for our framework. In their reply, Cohn et al. (2019) note that the manipulation check in the non-replicating sample showed no significant increase in the accessibility of bank-related thoughts between the treatment and control conditions. Thus, the prime in the replication did not appear to make participants' occupational role more salient in their minds. Whatever one's view of the substantive question about business culture, this observation points to a structural feature of cue-based interventions: a cue can only shift behavior to the extent that it activates relevant content in the participant's mental database. If the targeted associations are not represented in the database, or if the cue fails to make them accessible, the prime cannot move beliefs or choices in the predicted direction—regardless of whether the underlying hypothesis is correct.

This logic is built into our framework. Cues operate by raising the recall weight on similar states; absent states cannot be retrieved, and weakly activated states have weak effects. It also motivates our methodological approach. The open-ended elicitations we use in our online experiments serve precisely as a check on which content the cue actually activates, allowing us to verify rather than assume the cognitive shift that mediates the treatment effect on behavior (Haaland et al., 2025). More broadly, the experience with priming research suggests that combining cue manipulations with direct measures of activated cognitive content is valuable not only for identifying mechanisms but also for diagnosing why a given intervention does or does not produce its expected effect.

6 Conclusion

This paper studies how uninformative cues influence charitable giving. We develop a framework in which donors care about the consequences of their giving but, because the state space of consequences is large, form beliefs through an associative sampling process that is shaped by contextual cues. Cues affect giving even when they carry no information because they influence which attributes of charities and recipients come to mind at the moment of choice.

We provide evidence for this mechanism in a series of online experiments and a large-scale natural field experiment. In the online experiments, we vary whether a

cue mentions global or local needs, and find that this variation significantly changes donation behavior. Open-ended text responses reveal the mechanism: the cues shift attention toward global or local recipients, and these shifts in attention predict the treatment effect on donations. The results are robust to varying the implementation of the cue and the timing of the attention measure. In the natural field experiment, a group appeal referring to fellow donors intended to increase donations instead significantly reduces giving. Complementary online evidence replicates this negative effect and shows that the group appeal shifts attention to local needs, providing evidence for our mechanism.

These findings have several implications. For fundraising practice and charitable giving, they imply that effective communication requires considering not only the informational content of a campaign, but also which associations it activates. Group appeals, identity frames, and other contextual elements may redirect donors' attention in ways that are difficult to anticipate without understanding the processes that govern what comes to mind. Our framework highlights a key feature of how associations come to mind: associative recall based on the similarity between cues and states. Our field experiment provides an illustration of the importance of considering these processes: implementing a group appeal across the donor base cost the charity an estimated 30,000€ in forgone annual pledges because, as our evidence from the online experiment suggests, instead of invoking a norm of giving by mentioning donors, it shifted attention to local needs.

Beyond fundraising, our results carry lessons for behavioral interventions and for the study of prosocial behavior more broadly. Interventions are typically designed around what they communicate. Our findings suggest that what they cause recipients to retrieve also matters to a significant extent. Anticipating which beneficiaries, comparisons, and categories a cue activates in a given population can thus help amplify the intended message, while neglecting such effects may even reverse the intended effect. The same perspective helps us understand long-standing puzzles about the context-dependence of giving: variation across settings need not only reflect variation in underlying preferences, but also variation in what the decision environment makes accessible at the moment of choice. In summary, prosocial behavior is shaped as much by the cognitive material donors pay attention to as by the preferences they hold and the information they receive.

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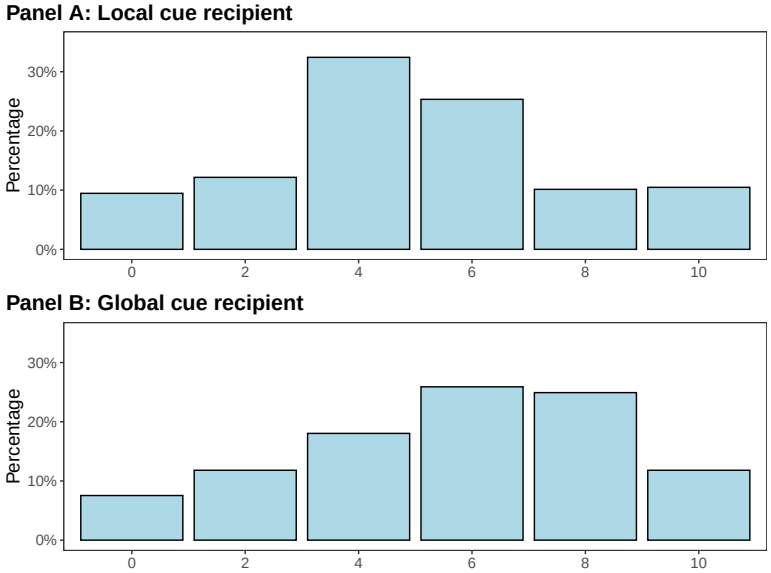
Appendix

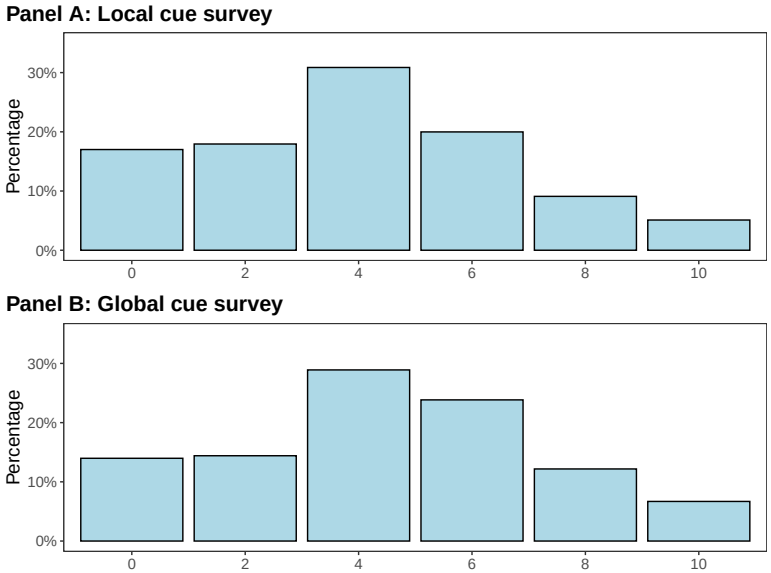
A Additional figures

Figure A.1: Distribution of donation decisions for the *Local cue recipient* and *Global cue recipient* condition



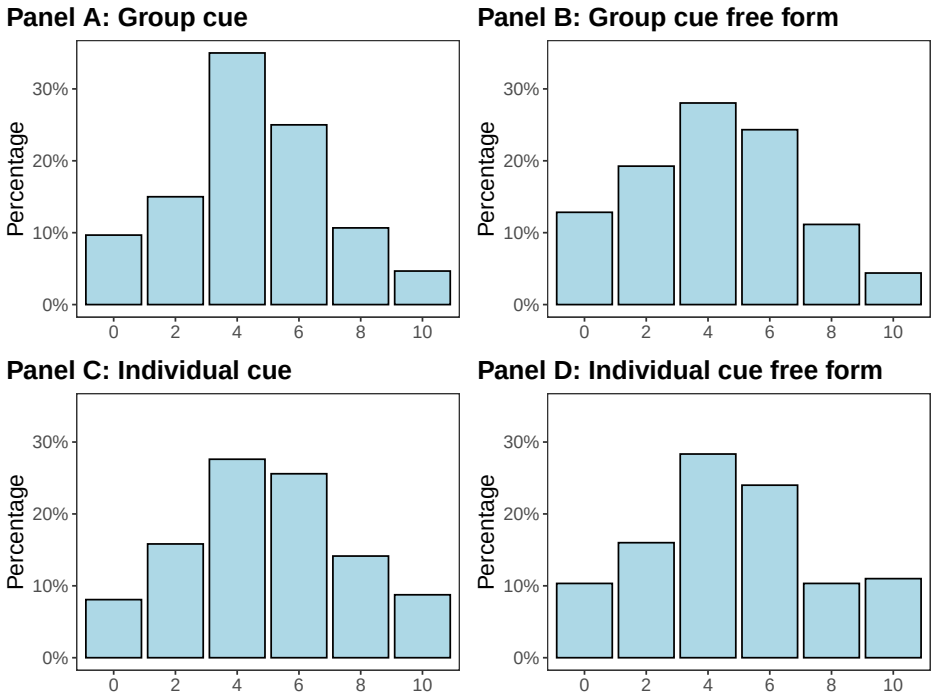
Notes: The figures display histograms of the donation behavior for the *Local cue recipient* and *Global cue recipient* conditions. The x-axis denotes the amount of money (out of £10) that subjects allocate to the International Red Cross instead of the British Red Cross.

Figure A.2: Distribution of donation decisions for the *Local cue survey* and *Global cue survey* condition



Notes: The figures display histograms of the donation behavior for the *Local cue survey* and *Global cue survey* conditions. The x-axis denotes the amount of money (out of £10) that subjects allocate to the International Red Cross instead of the British Red Cross.

Figure A.3: Distribution of donation decisions for the *Group cue* and *Individual cue* conditions



Notes: The figures display histograms of the donation behavior for the *Group cue*, *Individual cue*, *Group cue free form* and *Individual cue free form* conditions. The x-axis denotes the amount of money (out of £10) that subjects allocate to the International Red Cross instead of the British Red Cross.

B Additional tables

Table B.1: Open-ended responses as mediator of the treatment effect on donation behavior

	Dependent variable:		
	Donation to the International Red Cross		
	(1)	(2)	(3)
Constant (*Global cue recipient*)	5.685^{***}	6.379^{***}	4.244^{***}
	(0.164)	(0.178)	(0.239)
Treatment *Local cue recipient*	-0.766^{***}	0.290	0.367
	(0.229)	(0.266)	(0.260)
Local mention		-2.016^{***}	
		(0.271)	
Global mention			2.220^{***}
			(0.264)
Observations	601	601	601
R^2	0.018	0.105	0.126

Notes: The table shows OLS estimates. The dependent variable is the amount of money (out of £10) that subjects allocate to the International Red Cross instead of the British Red Cross. "Treatment *Local cue recipient*" is an indicator equal to one if subjects are part of the *Local cue recipient* condition, and zero if they are part of the *Global cue recipient* condition. "Global mention" and "Local mention" are indicator variables equal to one if the open-ended text responses contain globally located recipients and locally located recipients, respectively. Robust standard errors in parentheses. Significance levels: $^{*}p<0.1$, $^{**}p<0.05$ and $^{***}p<0.01$.

Table B.2: Open-ended responses as mediator of the treatment effect on donation behavior conceptual replication experiment

	Dependent variable:		
	Donation to the International Red Cross		
	(1)	(2)	(3)
Constant (*Global cue*)	4.518^{***}	5.690^{***}	3.565^{***}
	(0.082)	(0.104)	(0.093)
Treatment *Local cue*	-0.487^{***}	-0.292^{***}	-0.303^{***}
	(0.115)	(0.108)	(0.108)
Local mention		-2.030^{***}	
		(0.113)	
Global mention			1.992^{***}
			(0.109)
Observations	2,342	2,342	2,342
R^2	0.008	0.131	0.132

Notes: The table shows OLS estimates. The dependent variable is the amount of money (out of £10) that subjects allocate to the International Red Cross instead of the British Red Cross. "Treatment *Local cue*" is an indicator equal to one if subjects are part of the *Local cue* condition and zero if they are part of the *Global cue* condition. "Global mention" and "Local mention" are indicator variables equal to one if the open-ended text responses mention globally located recipients and locally located recipients, respectively. Robust standard errors in parentheses. Significance levels: $^{*}p<0.1$, $^{**}p<0.05$ and $^{***}p<0.01$.

Table B.3: The interaction of survey cue and group cue

	Dependent variable:
	Donation to the International Red Cross
Local survey cue	-0.487^{***}
	(0.115)
Group cue	0.191^{*}
	(0.114)
Local survey cue $\times$ *Group cue*	-0.125
	(0.159)
Constant (*Global survey cue*)	4.518^{***}
	(0.082)
Observations	4,658
R^2	0.011

Notes: The table shows OLS estimates. The dependent variable is the amount of money (out of £10) that subjects allocate to the International Red Cross instead of the British Red Cross. "Local survey cue" and "Group cue" are indicators equal to one if subjects are part of the conditions in which they receive the local survey cue and the group cue, respectively, in contrast to receiving the global survey cue or the individual cue. Robust standard errors in parentheses. Significance levels: $^{*}p<0.1$, $^{**}p<0.05$ and $^{***}p<0.01$.

Table B.4: Balance test across the three waves of the field experiment

	Wave 1			Wave 2			Wave 3		
	Group appeal (1)	Control (2)	H_0 : (1) = (2)	*Group appeal* (3)	Control (4)	H_0 : (3) = (4)	*Group appeal* (5)	Control (6)	H_0 : (5) = (6)
Annual donation amount	176	175	0.68	172	173	0.65	168	167	0.51
Provided Email	0.31	0.30	0.83	0.25	0.25	0.87	0.40	0.40	0.86
Recruited face to face	0.25	0.25	0.94	0.14	0.14	0.77	0.38	0.38	0.57
Men	0.51	0.52	0.16	0.51	0.51	0.98	0.48	0.48	0.84
Years donor	14.44	14.66	0.12	17.47	17.45	0.77	13.59	13.48	0.49
Local ZIP code population	18, 879	18, 984	0.47	18, 417	18, 445	0.73	18, 579	18, 477	0.58
Observations	10, 331	10, 269		47, 598	23, 733		8, 975	4,412	

Table B.5: Field experiment treatment effect on donation behavior displaying all coefficients

	Dependent variable:			
	Donation Probability		Donation Size	
	(1)	(2)	(3)	(4)
Group appeal	-0.093^{***}	-0.086^{***}	-0.285^{***}	-0.267^{**}
	(0.032)	(0.032)	(0.110)	(0.107)
log(Population)		0.034^{*}		0.141^{**}
		(0.020)		(0.062)
Men		-0.064^{**}		-0.188^{*}
		(0.029)		(0.102)
Received by Email		-0.078^{**}		-0.350^{***}
		(0.031)		(0.097)
log(Annual donation amount)		0.080^{**}		0.642^{***}
		(0.034)		(0.219)
log(Years donor)		-0.007		-0.124
		(0.026)		(0.091)
Recruited face to face		-0.085^{*}		-0.284
		(0.043)		(0.180)
Wave1		0.062		0.125
		(0.042)		(0.153)
Wave3		-0.012		-0.169^{**}
		(0.042)		(0.083)
Constant (*Control*)	0.281^{***}	-0.365	0.665^{***}	-3.320^{**}
	(0.027)	(0.279)	(0.101)	(1.405)
Observations	105,318	105,318	105,318	105,318

Notes: The table shows OLS estimates. The dependent variable in columns (1) and (2) is a variable equal to 100 if a subject signs the annual pledge solicited in the fundraising letter and zero otherwise and in columns (3) and (4) the amount in Euro that is pledged. "*Group appeal*" is equal to 1 when the subject is part of the *Group appeal* treatment and zero if the subject is part of the *Control* condition. "log(Population)" is the logarithm of the number of individuals living in subjects' ZIP code region. "Men" is an indicator equal to one if the subject is a man and zero if female. "Received by Email" is an indicator if the subject also received the fundraising appeal via email after the letter. "log(Annual donation amount)" is the logarithm of the amount subjects donate annually as their existing pledge. "log(Years donor)" is the logarithm of the years that subjects have been donating to the organisation. "Recruited face to face" is an indicator equal to one if subjects were initially recruited via a face to face approach. "Wave 1" and "Wave 3" are indicator variables equal to one if subjects were part of the first and third wave, respectively, of sending the letters, relative to the second wave. Robust standard errors in parentheses. Significance levels: $^{*}p<0.1$, $^{**}p<0.05$ and $^{***}p<0.01$.

Table B.6: Field experiment treatment effect on donation behavior robustness

	Dependent variable:			
	Has donated (Probit)		Has donated (Probit marginal effects)	
	(1)	(2)	(3)	(4)
Group appeal	-0.128**	-0.120**	-0.00093**	-0.00082**
	(0.042)	(0.043)	(0.00032)	(0.00031)
Constant (*Control*)	-2.769***	-3.714***		
	(0.031)	(0.420)		
Controls	No	Yes	No	Yes
Observations	$105,318$	$105,318$	$105,318$	$105,318$

Notes: The table shows Probit estimates in columns (1) and (2) and Probit marginal effects in columns (3) and (4). The dependent variable is a variable equal to 1 if a subject signs the annual pledge solicited in the fundraising letter and zero otherwise. "*Group appeal*" is equal to 1 if the subject is part of the *Group appeal* treatment and zero if the subject is part of the *Control* condition. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, the years they have been a donor as well as wave fixed effects. Robust standard errors in parentheses. Significance levels: *p<0.1, **p<0.05 and ***p<0.01.

Table B.7: Field experiment treatment effect on total donation size robustness to outliers

	Dependent variable:			
	Total Donation Size		log(Donation Size + 1)	
	(1)	(2)	(3)	(4)
GROUP	−0.155**	−0.149**	−0.005***	−0.005***
	(0.065)	(0.065)	(0.002)	(0.002)
Constant (*CONTROL*)	0.482***	−1.171**	0.015***	−0.026*
	(0.055)	(0.583)	(0.001)	(0.015)
Controls	No	Yes	No	Yes
Observations	105,308	105,308	105,318	105,318

Notes: The table shows OLS estimates. The dependent variable in columns (1) and (2) is the amount in Euro that subjects pledge annually to donate to the charity. In columns (3) and (4), this variable is logarithmized. To deal with the zeros, a constant of 1 is added beforehand. "*Group appeal*" is equal to 1 when the subject is part of the *Group appeal* treatment and zero if the subject is part of the *Control* condition. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, the years they have been a donor as well as wave fixed effects. In columns (1) and (2), we excluded 10 observations from the main sample that were identified using a Cook's distance of $1/4N$. Robust standard errors in parentheses. Significance levels: *p<0.1, **p<0.05 and ***p<0.01.

Table B.8: Field experiment treatment effect on follow-up donation behavior

	Dependent variable:									
	Next call: Donation Probability		Next call: Donation Size		Next 6 calls: Donated in any		Next 6 calls: Donation Size		Has terminated contract	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Group appeal	0.015	−0.021	0.117	0.080	0.003	0.001	0.142	−0.021	−0.002	0.001
	(0.095)	(0.096)	(0.171)	(0.172)	(0.002)	(0.002)	(0.916)	(0.906)	(0.002)	(0.002)
Constant (*Control*)	2.257***		2.321***		0.114***		21.755***		0.068***	
	(0.076)		(0.123)		(0.002)		(0.784)		(0.001)	
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	105,318	105,318	105,318	105,318	105,318	105,318	105,318	105,318	105,318	105,318

Notes: The table shows OLS estimates. The dependent variable in columns (1) and (2) is a variable equal to 100 if a subject signs an additional pledge in the next fundraising campaign after the field experiment and zero otherwise and in columns (3) and (4) the amount in Euro that is pledged in the next campaign. The dependent variable in columns (5) and (6) is an indicator equal to 1 if a subject signs an additional pledge in any of the next six fundraising campaigns after the field experiment and zero otherwise and in columns (7) and (8) the total amount in Euro that is pledged in the next six fundraising campaigns after the field experiment. Lastly, the dependent variable in columns (9) and (10) is an indicator equal to one if a subject terminates his existing giving pledge. "*Group appeal*" is equal to 1 when the subject is part of the *Group appeal* treatment and zero if the subject is part of the *Control* condition. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, the years they have been a donor as well as wave fixed effects. Robust standard errors in parentheses. Significance levels: $^{*}p<0.1$, $^{**}p<0.05$ and $^{***}p<0.01$.

Table B.9: Field experiment treatment effect by population size

	Dependent variable:			
	Donation Probability		Donation Size	
	(1)	(2)	(3)	(4)
Group appeal	0.055	0.070	2.195	2.281
	(0.404)	(0.405)	(1.464)	(1.489)
log(Population)	0.043	0.044	0.314**	0.309**
	(0.035)	(0.035)	(0.148)	(0.144)
Group appeal × log(Population)	−0.015	−0.016	−0.257	−0.265*
	(0.042)	(0.042)	(0.159)	(0.161)
Constant	−0.134	−0.465	−2.359*	−4.942**
	(0.336)	(0.407)	(1.351)	(2.234)
Controls	No	Yes	No	Yes
Observations	105,318	105,318	105,318	105,318

Notes: The table shows OLS estimates. The dependent variable in columns (1) and (2) is a variable equal to 100 if a subject signs the annual pledge solicited in the fundraising letter and zero otherwise and in columns (3) and (4) the amount in Euro that is pledged. "log(Population)" is the logarithm of the population of the respective subject's ZIP code region. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the years they have been a donor as well as wave fixed effects. Robust standard errors in parentheses. Significance levels: $^{*}p<0.1$, $^{**}p<0.05$ and $^{***}p<0.01$.

C Open-ended responses coding procedure

This section describes the coding procedure of the open-ended responses. For both experiments, two research assistants coded the open-ended responses. The coding scheme was devised before data collection, and the research assistants were blind to hypotheses and treatment status of the responses. In cases of disagreements, a third research assistant resolved disagreements. We use the resolved scores as our variables. Below, we report the reliability of the coding procedure.

Initial experiment. For the initial experiment, i.e., the *Local cue recipient*, *Global cue recipient*, *Individual cue free form*, and *Group cue free form* conditions, Table C.1 shows the results of both coders for the $1,197$ open-ended responses. Comparing the classifications between the two coders shows very high degrees of agreement. Indeed, we calculate a Cohen's Kappa of 0.94 for both local and global mentions, which commonly indicates near perfect agreement.

Conceptual replication experiment. For this experiment, i.e., the *Local cue survey* and *Global cue survey* conditions, Table C.2 shows the results of both coders for the $2,342$ open-ended responses. We again find high degrees of agreement (Cohen's Kappa $= 0.90$ for global mentions, Cohen's Kappa $= 0.94$ for local mentions).

Table C.1: Comparing human coder classifications for the initial experiment

	Coder 1	Coder 2	Final
Local mention = 1 & Global mention = 0	68.09%	68.42%	68.00%
Local mention = 0 & Global mention = 1	26.40%	26.82%	26.32%
Local mention = 0 & Global mention = 0	4.34%	4.09%	4.51%
Local mention = 1 & Global mention = 1	1.17%	0.67%	1.17%

Notes: The table shows the result of coding $1,197$ open-ended text responses of the *Local cue recipient*, *Global cue recipient*, *Individual cue free form*, and *Group cue free form* conditions. "Global mention" and "Local mention" are indicator variables equal to one if the open-ended text responses contain a globally located recipient and a locally located recipient, respectively.

Table C.2: Comparing human coder classifications for the conceptual replication

	Coder 1	Coder 2	Final
Local mention = 1 & Global mention = 0	53.8%	55.59%	54.31%
Local mention = 0 & Global mention = 1	34.16%	35.48%	34.97%
Local mention = 0 & Global mention = 0	2.56%	1.67%	2.48%
Local mention = 1 & Global mention = 1	9.48%	7.26%	8.24%

Notes: The table shows the result of coding $2,342$ open-ended text responses of the *Local cue survey* and *Global cue survey* conditions. "Global mention" and "Local mention" are indicator variables equal to one if the open-ended text responses contain a globally located recipient and a locally located recipient, respectively.

D Examples of group appeals

The Australian Red Cross invites people to volunteer as a team with the slogan "nothing beats the feeling of saving lives together." On their website, potential donors can register a personal account, create a new Lifeblood Team or join an existing one, and even become a Lifeblood Champion. Contributions are tracked at the group level, as each blood donation counts toward the team's total.[13] The Australian charity MS Plus aims at improving the lives of people affected by multiple sclerosis and regularly organizes charity cycling events in which the top teams' fundraising totals are posted on its website.[14] Similarly, the charity Leukaemia & Blood Cancer New Zealand encourages donors to give in teams with features such as team profile pictures, introductory texts, and team fundraising goals.[15] Movember, a foundation dedicated to men's health projects around the world, motivates potential donors to create a "Movember Team" and join a field or industry-specific team challenge to compete against other teams representing, for example, schools, universities, companies, or sports clubs.[16] Monthly donors to the United Nations World Food Programme can join "Challenges" as a feature within the charity's ShareTheMeal app—which provides a way to donate together with other donors in a group.[17] Not only charities, but also large fundraising platforms that serve as tools for smaller nonprofits to securely collect and process donations offer ways to create a sense of community by allowing donors to form teams (e.g. givelively.org or givebutter.com). In addition, a common feature of most of the above fundraising campaigns is that they feature leaderboards, i.e., a public ranking of team contributions.

[13] https://www.lifeblood.com.au/blood/donate-as-a-group ((02/28/2023))
[14] https://www.msgongride.org.au/fundraising/leaderboard (02/28/2023)
[15] https://www.shaveforacure.co.nz/teamsleaderboard (02/28/2023)
[16] https://ie.movember.com/leaderboards/network/ (02/28/2023)
[17] ShareTheMeal App (02/28/2023)

E Research transparency

Table E.1 provides an overview of the treatments of the two online experiments and the field experiment. The online experiments as well as the field experiment were preregistered at aspredicted.org and the AEA RCT registry, respectively. The preregistrations include details on the experimental design, the sampling process and planned sample size, exclusion criteria, hypotheses, and the main analyses. This section documents the mapping of the preregistration and paper.

Table E.1: Overview of treatments

Label	N	Date	Covered in	Link to preregistration
Local cue recipient & *Global cue recipient*	601	July 2024	Section 2.2.1	https://aspredicted.org/wg4s-9s58.pdf
Individual cue, *Group cue*, *Individual cue free form* & *Group cue free form*	1,193	July 2024	Section 3.2	https://aspredicted.org/wg4s-9s58.pdf
Local cue survey & *Global cue survey*	2,342	September 2025	Section 2.2.2	https://aspredicted.org/s2et6e.pdf
Local cue + group cue & *Global cue + group cue*	2,316	September 2025	Section 4.1.2	https://aspredicted.org/s2et6e.pdf
Control & *Group appeal* & *Group competition*	105,318	June–August 2021	Sections 3.1, 4.1.1	https://doi.org/10.1257/rct.7724-1.0; https://doi.org/10.1257/rct.7962-1.1

E.1 Online Experiment

We conducted the online experiments in two waves. In the first wave, conducted in July 2024, we ran the treatment conditions *Local cue recipient* and *Global cue recipient* (covered in Section 2.2.1) as well as *Group cue*, *Individual cue*, *Group cue free form*, and *Individual cue free form* (covered in Section 3.2). In the second wave, conducted in September 2025, we ran the treatment conditions *Local cue survey* and *Global cue survey* (covered in Section 2.2.2) as well as *Local cue + group appeal* and *Global cue + group appeal* (covered in Section 4.1.2). Both waves were preregistered at aspredicted.org. The document for wave 1 can be accessed here https://aspredicted.org/wg4s-9s58.pdf, the document for wave 2 here https://aspredicted.org/s2et6e.pdf.

Our experimental implementation followed closely the pre-registration. In particular, we implemented the experimental design and sample size exactly as specified in the pre-registration. Similarly, we employed the exclusion criteria as pre-registered: we specified to exclude any subject who did not complete the experiment, which was about 1-6% in each condition. Specifically, in the first wave, excluded were 7 subjects in *Local cue recipient*, 15 in *Global cue recipient*, 2 in *Group cue*, 1 in *Individual cue*, 21 in *Group cue free form* and 13 in *Individual cue free form*. In the second wave, excluded were 64 subjects in *Global cue survey*, 57 in *Local cue survey*, 76 in *Global*

cue + group cue and 78 in *Local cue + group cue*. The sample sizes reported in the paper are the final sample sizes used in all analyses of the paper after excluding the previously mentioned numbers of subjects.

In the following, we map our pre-registered hypotheses to the results reported in the paper.

E.1.1 Online experiment wave 1

We start with the first wave of the online experiments.[18]

***Local cue* versus *Global cue*.** As pre-registered, we test whether donations to the International Red Cross are lower in the *Local cue* condition compared to the *Global cue* condition. Furthermore, we test whether there are more local mentions and less global mentions in the open-ended question in the *Local cue* condition compared to the *Global cue* condition. We find support for both hypotheses, with results reported in Section 2.2.1.

***Group cue* versus *Individual cue*.** As pre-registered, we test whether donations to the International Red Cross are lower in the *Group cue* condition compared to the *Individual cue* condition (or equivalently, that donations to the British Red Cross are higher). This hypothesis is supported by the data, see Section 3.2.2.

***Group cue free form* versus *Individual cue free form*.** As pre-registered, we test whether donations to the International Red Cross are lower in the *Group cue free form* condition compared to the *Individual cue free form* condition. Furthermore, we test whether there are more local mentions and fewer global mentions in the open-ended question in the *Group cue free form* condition compared to the *Individual cue free form* condition. We find support for both hypotheses, with results reported in the third paragraph of Section 3.2.2.

E.1.2 Online experiment wave 2

We now turn to the second wave of the online experiments.[19]

***Local cue survey* versus *Global cue survey*.** While not explicitly preregistered as a hypothesis, we compare the conditions in Section 2.2.2.

[18] Treatment names were updated in the paper relative to the pre-registration. Specifically, *Control* is now *Individual cue*, *Group prime* is now *Group cue*, *Free form control* is now *Individual cue free form*, *Free form group prime* is now *Group cue free form*, *Free form local prime* is now *Local cue recipient*, and *Free form global prime* is now *Global cue recipient*.

[19] Treatment names were updated in the paper relative to the pre-registration. Specifically, *Local cue survey* corresponds to *Non-social framing Local priming*, and *Global cue survey* corresponds to *Non-social framing Global priming*. Furthermore, *Global cue + Group cue* corresponds to *Social framing Global priming*, and *Local cue + Group cue* corresponds to *Social framing Local priming*.

Interaction of survey cue with group cue. As pre-registered, we test for the interaction between the two cues in Section 4.1.2 and find no effect. Moreover, in the same section, we test the *Local cue survey* and *Local cue + Group cue* against each other as well as the *Global cue survey* and *Global cue + Group cue*. Both comparisons were not explicitly preregistered as hypotheses.

E.2 Field Experiment

The charity we collaborated with implemented the field experiment in three waves. Each wave was pre-registered in a different document. The letters of the first wave were sent in June 2021, the second in July 2021, and the third in August 2021. The pre-registration for the first wave can be found here: https://doi.org/10.1257/rct.7724-1.0. Due to uncertainty about the implementation by the charity, the pre-registration did not specify a sample size. The implemented sample size was $20,600$.

The pre-registration for the second wave can be found here: https://doi.org/10.1257/rct.7962-1.1. The initially uploaded document corresponds to wave 2 and specified a sample size of $71,000$; the implemented sample size was $71,331$. The charity then decided to implement a third wave, which is preregistered as an amendment to the previous preregistration of wave 2. The amendment specified an additional sample size of $13,400$; the implemented sample size was $13,387$.

The intended main data collection was wave 2. Since the other two waves are almost identical in their features, we decided to pool all waves together in this paper for transparency and to maximize sample size. Importantly, our results fully replicate when we focus only on wave 2. In Table E.2, we replicate the negative effect of the group appeal on donation probability and donation size from Table 1 in the main document. In Table E.3, we replicate the lack of a difference between *Group competition* and *Group appeal no competition* reported in Table 2. The coefficients and effect sizes are very similar, showing that our results do not depend on adding or removing the two additional waves of data collection.

The pre-registration for wave 2 specified the three conditions *Control*, *Group appeal* and *Group competition*.[20] In the paper, we pool the *Group appeal* and *Group competition* conditions together and report the analysis as otherwise pre-registered in Section 3.1. Table E.4 shows that the findings of Table 1 remain statistically significant if we focus only on the comparison between *Group appeal* and *Control*.

[20]Treatment names were updated in the paper relative to the pre-registration. Specifically, *Control* corresponds to *Individual*, *Group appeal* corresponds to *Group*.

Table E.2: The effect of the group appeal on donation behavior using only wave 2

	Dependent variable:			
	Donation Probability		Donation Size	
	(1)	(2)	(3)	(4)
Group appeal	-0.085^{**}	-0.085^{**}	-0.266^{**}	-0.265^{**}
	(0.039)	(0.039)	(0.127)	(0.127)
Constant (*Control*)	0.270^{***}		0.651^{***}	
	(0.034)		(0.116)	
Controls	No	Yes	No	Yes
Observations	71,331	71,331	71,331	71,331

Notes: The table shows OLS estimates for the wave 2 sample of the field experiment. The dependent variable in columns (1) and (2) is a variable equal to 100 if a subject signs the annual pledge solicited in the fundraising letter and zero otherwise and in columns (3) and (4) the amount in Euro that is pledged. "*Group appeal*" is equal to 1 when the subject is part of the *Group appeal* treatment and zero if the subject is part of the *Control* condition. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, the years they have been a donor as well as wave fixed effects. Robust standard errors in parentheses. Significance levels: *p$<$0.1, **p$<$0.05 and ***p$<$0.01.

Table E.3: Field experiment treatment effect of explicit group competition on donation behavior within the *Group appeal* condition using only wave 2

	Dependent variable:			
	Donation Probability		Donation Size	
	(1)	(2)	(3)	(4)
Group competition	-0.025	-0.025	-0.055	-0.055
	(0.039)	(0.039)	(0.105)	(0.105)
Constant (*Group appeal no competition*)	0.198^{***}		0.412^{***}	
	(0.029)		(0.073)	
Controls	No	Yes	No	Yes
Observations	47,598	47,598	47,598	47,598

Notes: The table shows OLS estimates for the wave 2 sample of the field experiment. The dependent variable in columns (1) and (2) is a variable equal to 100 if a subject signs the annual pledge solicited in the fundraising letter and zero otherwise and in columns (3) and (4) the amount in Euro that is pledged. "*Group competition*" is equal to 1 when the subject is part of the *Group competition* treatment and zero if the subject is part of the *Group appeal* condition without the additional competition element. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, the years they have been a donor as well as wave fixed effects. Robust standard errors in parentheses. Significance levels: *p$<$0.1, **p$<$0.05 and ***p$<$0.01.

Table E.4: The effect of the group appeal on donation behavior excluding the group competition condition

	Dependent variable:			
	Donation Probability		Donation Size	
	(1)	(2)	(3)	(4)
Group appeal no competition	-0.084^{**}	-0.084^{**}	-0.262^{**}	-0.263^{**}
	(0.035)	(0.035)	(0.118)	(0.118)
Constant (*Control*)	0.281^{***}		0.665^{***}	
	(0.027)		(0.101)	
Controls	No	Yes	No	Yes
Observations	76,990	76,990	76,990	76,990

Notes: The table shows OLS estimates excluding the group competition condition. The dependent variable in columns (1) and (2) is a variable equal to 100 if a subject signs the annual pledge solicited in the fundraising letter and zero otherwise and in columns (3) and (4) the amount in Euro that is pledged. "*Group appeal no competition*" is equal to 1 when the subject is part of the *Group appeal* treatment without the additional group competition part and zero if the subject is part of the *Control* condition. Additional independent variables ("Controls") added in columns (2) and (4) are subjects' annual donation amount, whether they provided their email, whether they were recruited face-to-face, their gender, the population of their ZIP code, the years they have been a donor as well as wave fixed effects. Robust standard errors in parentheses. Significance levels: $^{*}p<0.1$, $^{**}p<0.05$ and $^{***}p<0.01$.

F Experimental material and instructions

F.1 Field experiment material

The following displays the text of the letters that were distributed in the field experiment.
[Standard letter head]

[Control]
Emergency Helpers needed!

[Group appeal]
Emergency Helpers from <ZIP CODE> <REGION> needed! We are looking for generous neighborhoods

[Group competition]
Emergency Helpers from <ZIP CODE> <REGION> needed! We will award the most generous neighborhoods

Dear [Name of donor],

many children are currently having a harder time than ever. Poverty and hunger are continuing to affect girls and boys all over the world. Wars, natural disasters and the corona crisis are increasing the plight of children. It is our job to help them quickly. As [charity name] sponsors, you are making an important contribution to this.

Our helpers are currently in constant operation in many places, for example in [country]. The country is on the verge of collapse due to a long, terrible civil war. Millions of children are starving.

[charity name] is providing emergency aid in [country of operation]. This means that, for example, we are providing malnourished children with special food. For girls and boys, we are organizing medical aid that cannot be delayed. It is about ensuring that children can survive.

Every year, [charity name] teams carry out around 300 emergency aid missions in 100 countries. Whether currently in [country] or [event in other country] – wherever children urgently need help, our helpers are on site.

[Control]
Help us now: Become a [charity name] Emergency Helper and make life-saving emergency aid possible with your contribution!

[Group appeal]
Help us now as a team together with other donors from <ZIP CODE> and <REGION>: Become a [charity name] Emergency Helper and make life-saving emergency aid possible with your contribution!

[Group competition]
Help us now as a team together with other donors from <ZIP CODE> and <REGION>: Become a [charity name] Emergency Helper and make life- saving emergency aid possible with your contribution!

We will crown the neighborhoods with the highest numbers of Emergency Helpers in our next newsletter as well as on our homepage and on social media.

Further information about the campaign can be found at: [link]

I would like to thank you very much for your generous support.

With warm thanks and kind regards [Picture, name and signature of the charity's director]

F.2 Online experiment wave 1 instructions

This section provides screenshots of the instructions of the online experiment. Note that in order to avoid anchoring effects, the slider-thumbs of the donation decision are initially hidden and only appear once subjects click on the slider-scale.

F.2.1 Local cue recipient

Figure F.1: *Local cue recipient* condition screen 1

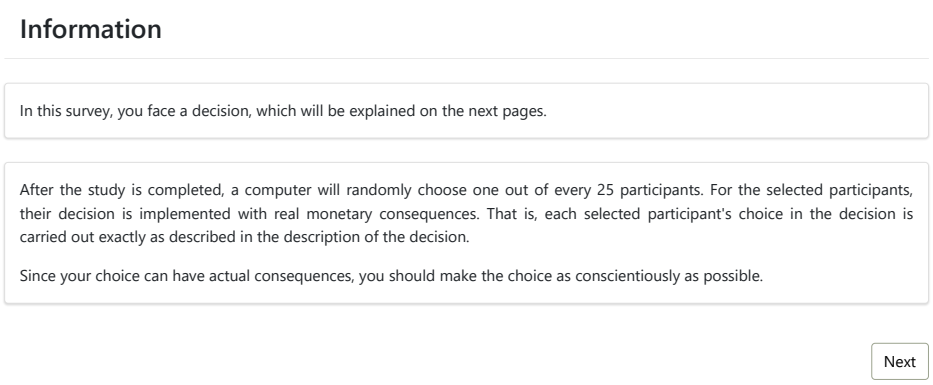


Figure F.2: *Local cue recipient* condition screen 2

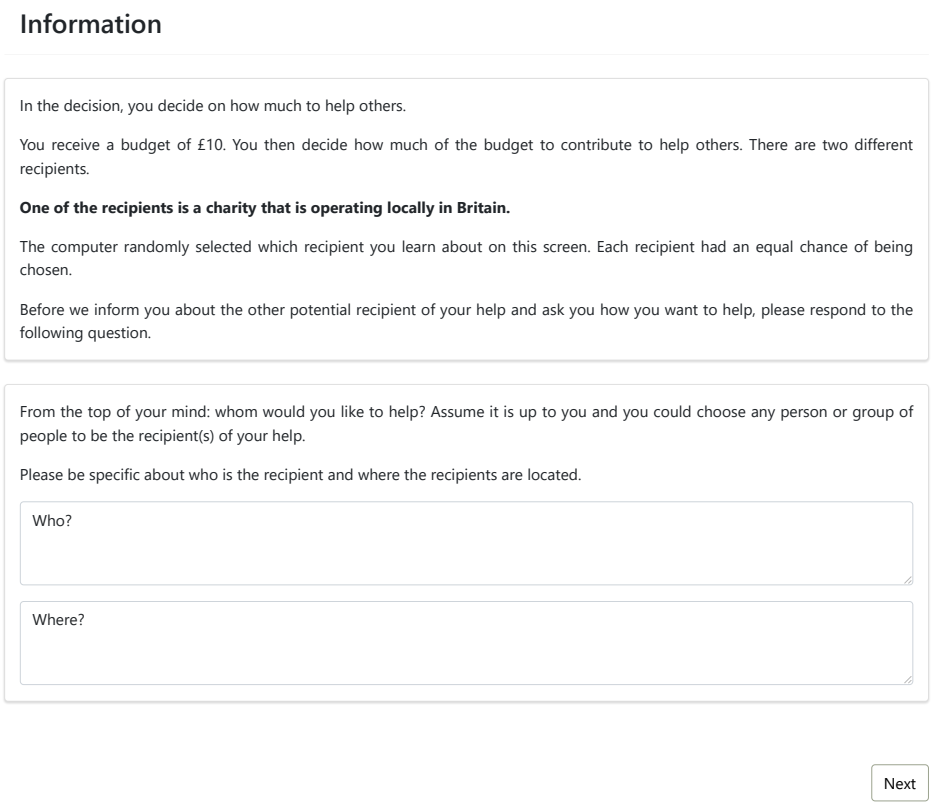
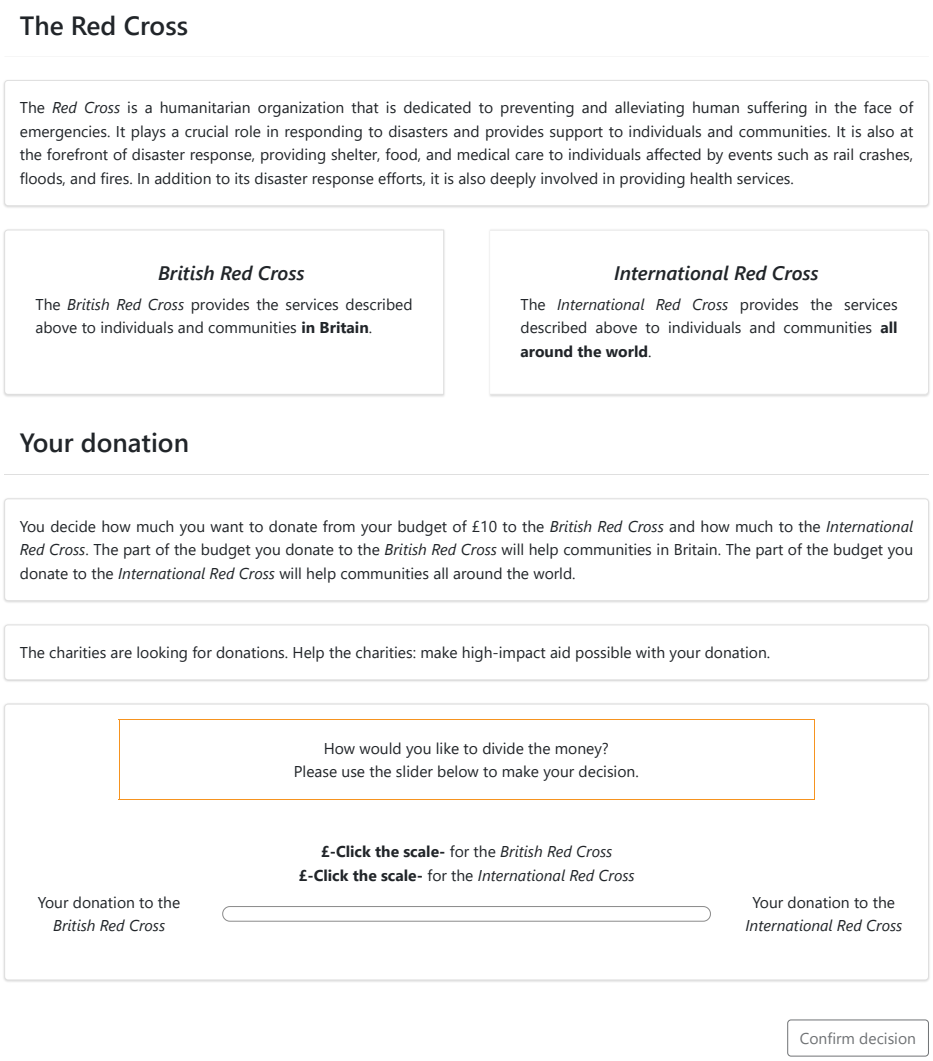


Figure F.3: *Local cue recipient* condition screen 3



F.2.2 Global cue recipient condition

Figure F.4: *Global cue recipient* condition screen 1

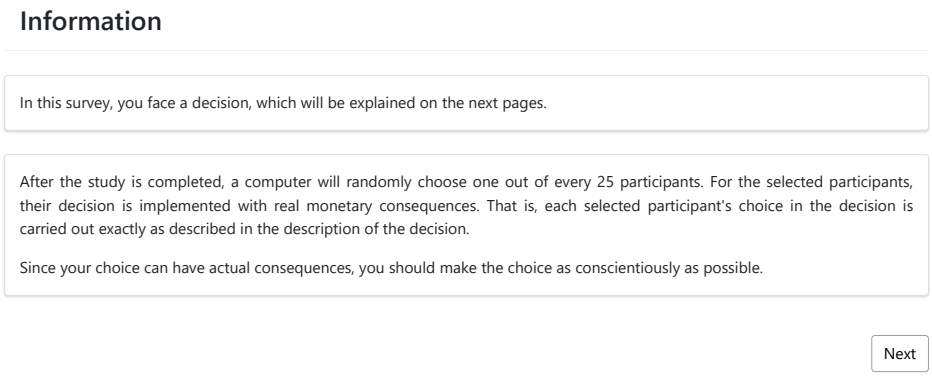


Figure F.5: *Global cue recipient* condition screen 2

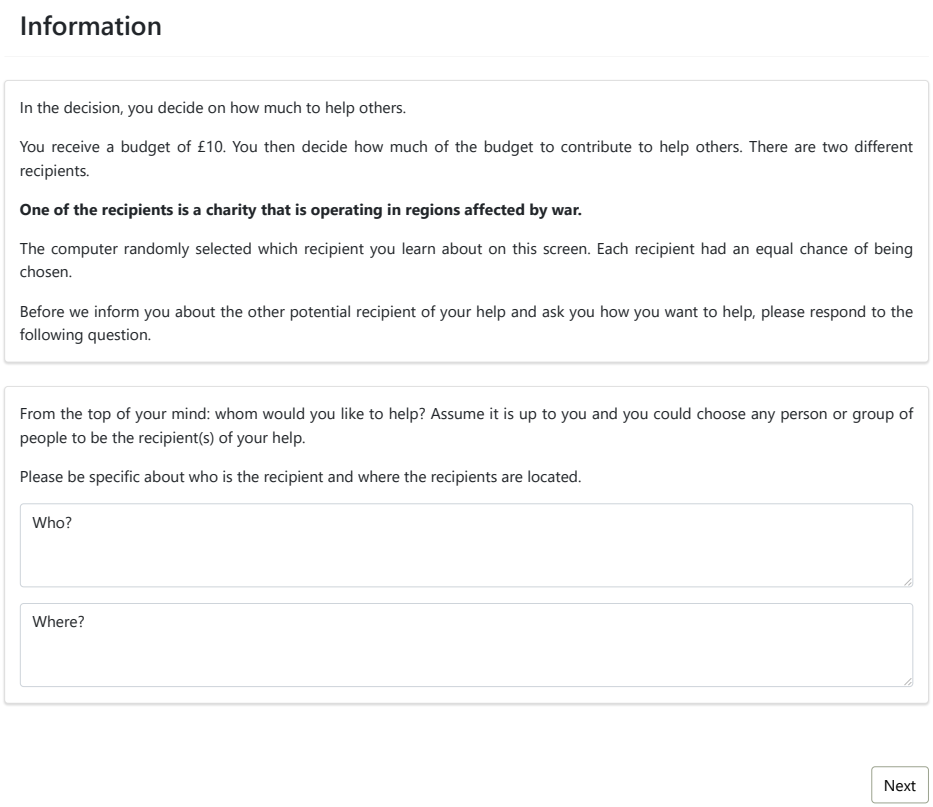
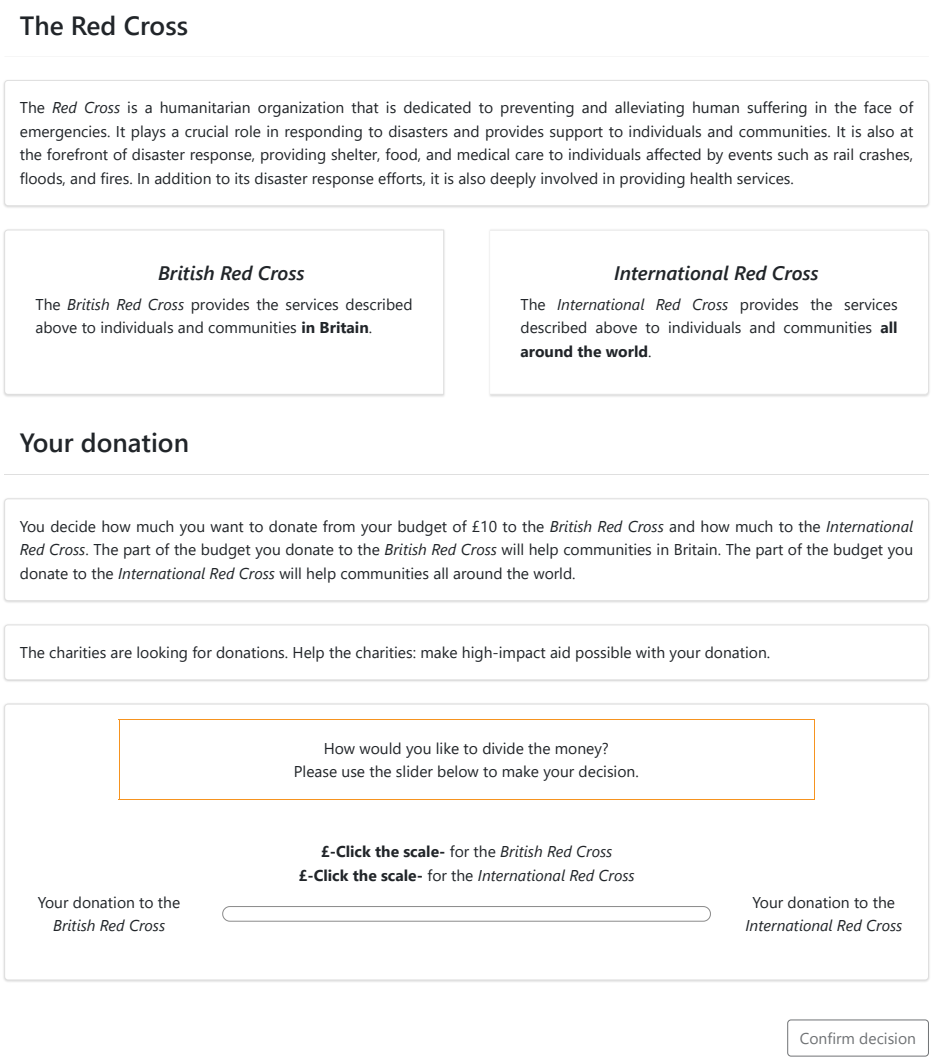


Figure F.6: *Global cue recipient* condition screen 3



F.2.3 Individual cue condition

Figure F.7: *Individual cue* condition screen 1

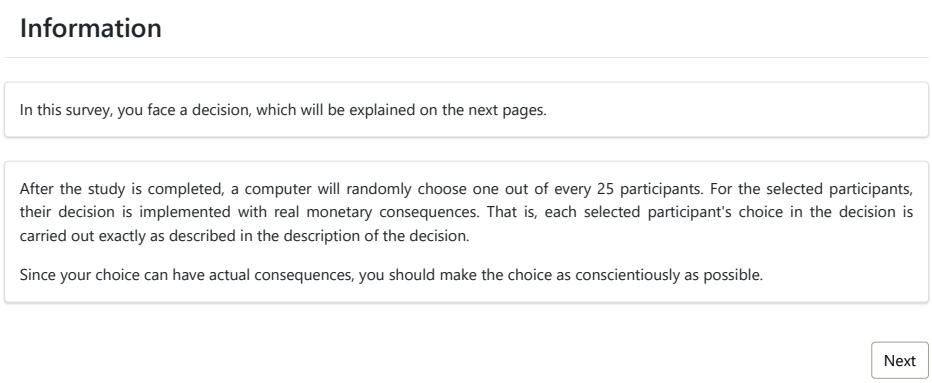


Figure F.8: *Individual cue* condition screen 2

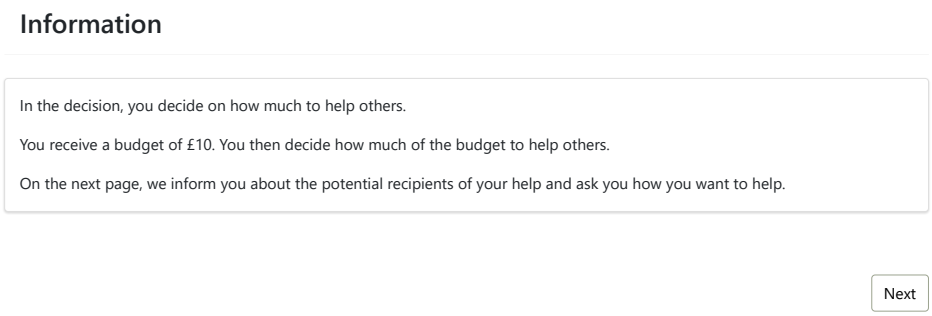
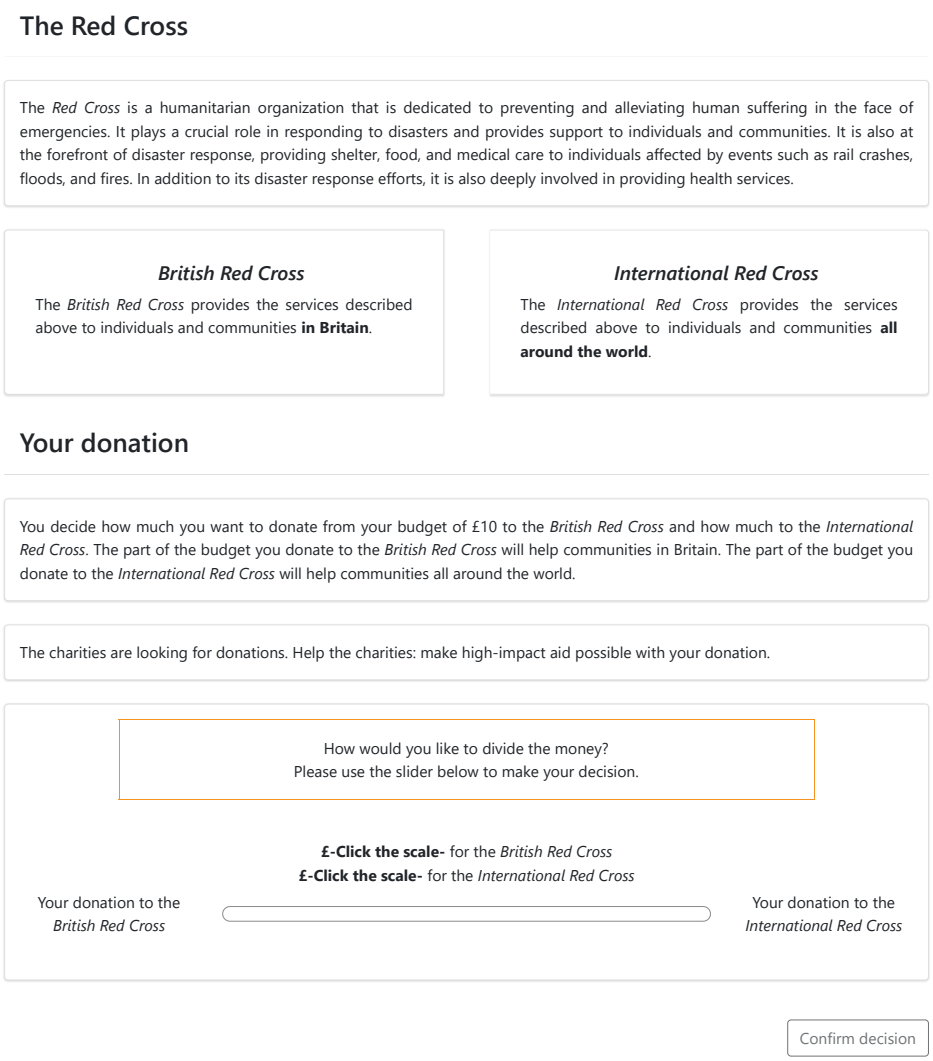


Figure F.9: *Individual cue* condition screen 3



F.2.4 Group cue condition

Figure F.10: *Group cue* condition screen 1

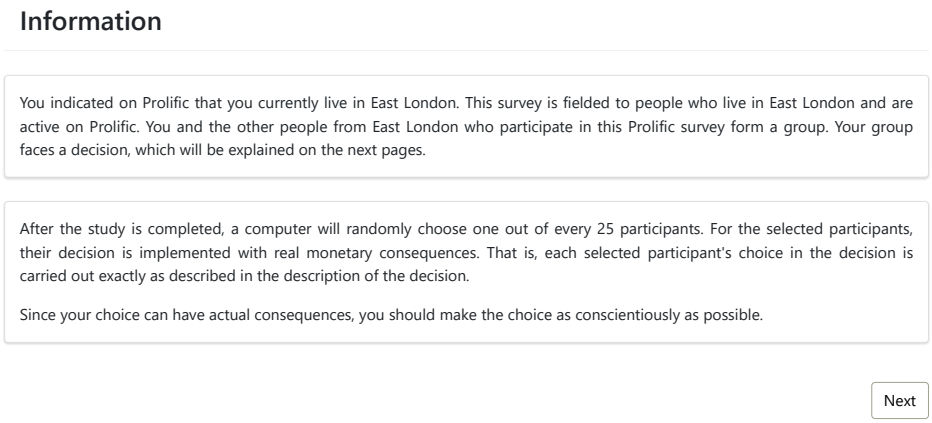


Figure F.11: *Group cue* condition screen 2

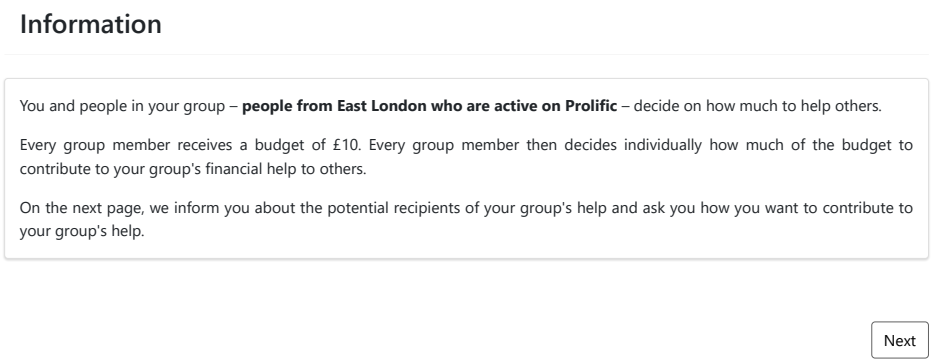
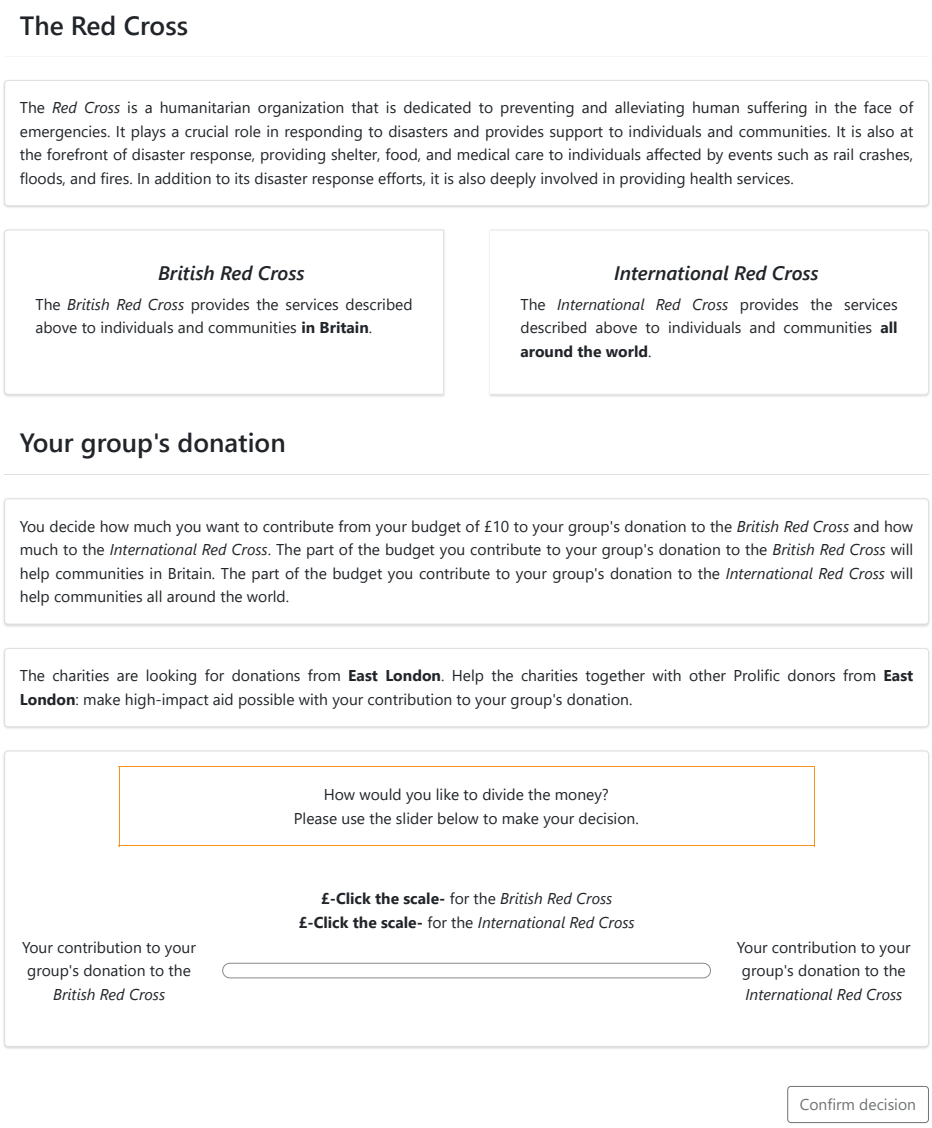


Figure F.12: *Group cue* condition screen 3



F.2.5 Individual cue free form condition

Figure F.13: *Individual cue free form* condition screen 1

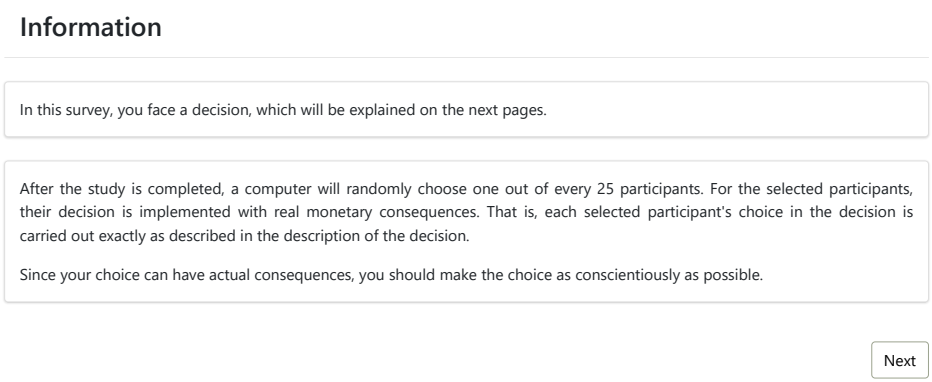


Figure F.14: *Individual cue free form* condition screen 2

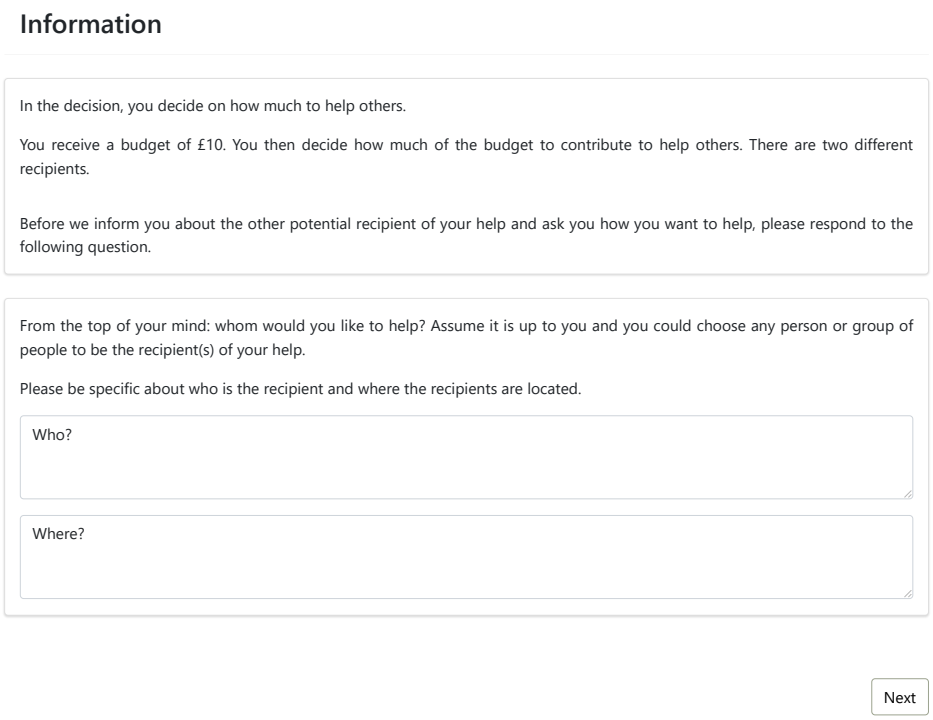
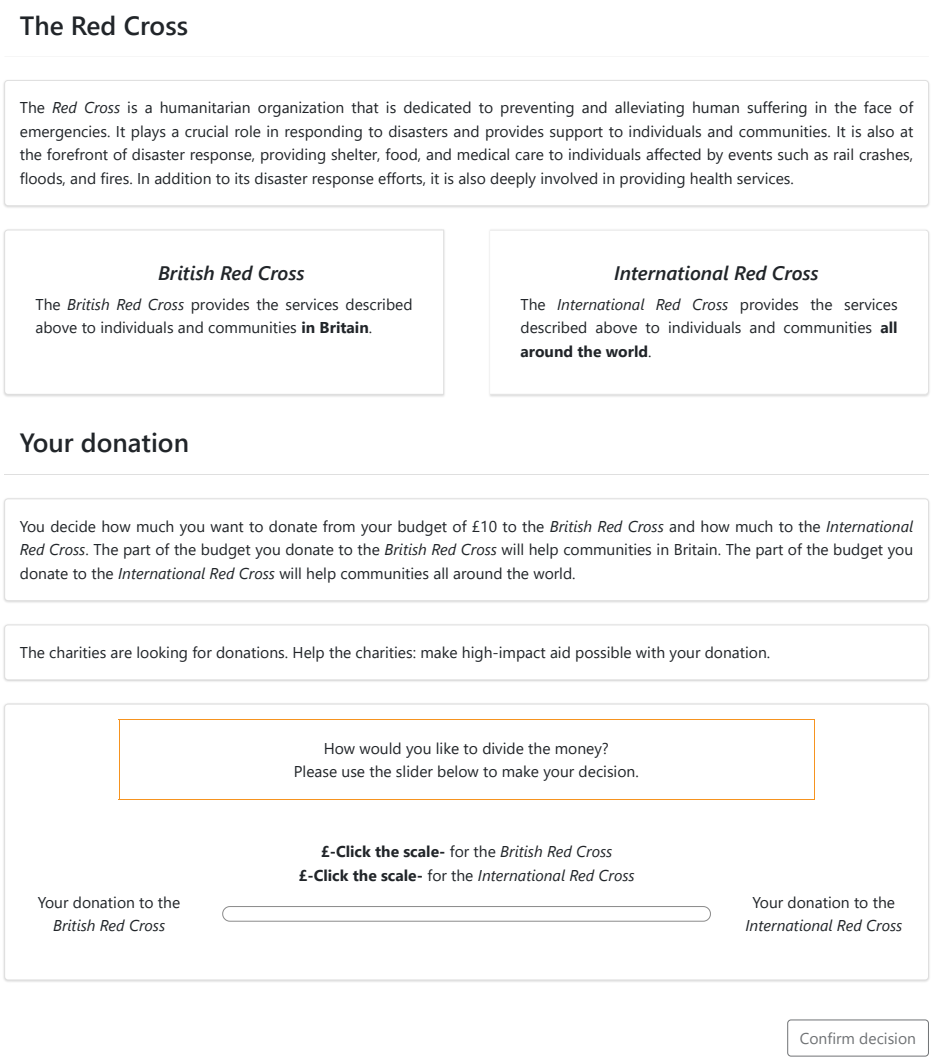


Figure F.15: *Individual cue free form* condition screen 3



F.2.6 Group cue free form condition

Figure F.16: *Group cue free form* condition screen 1

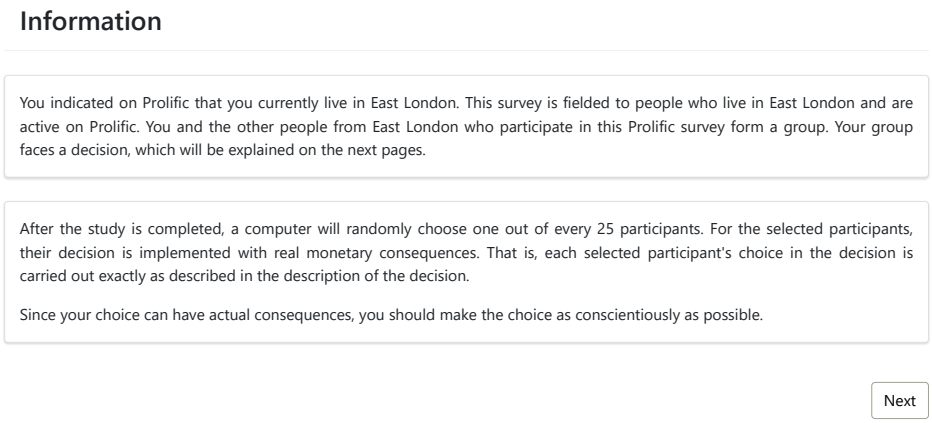


Figure F.17: *Group cue free form* condition screen 2

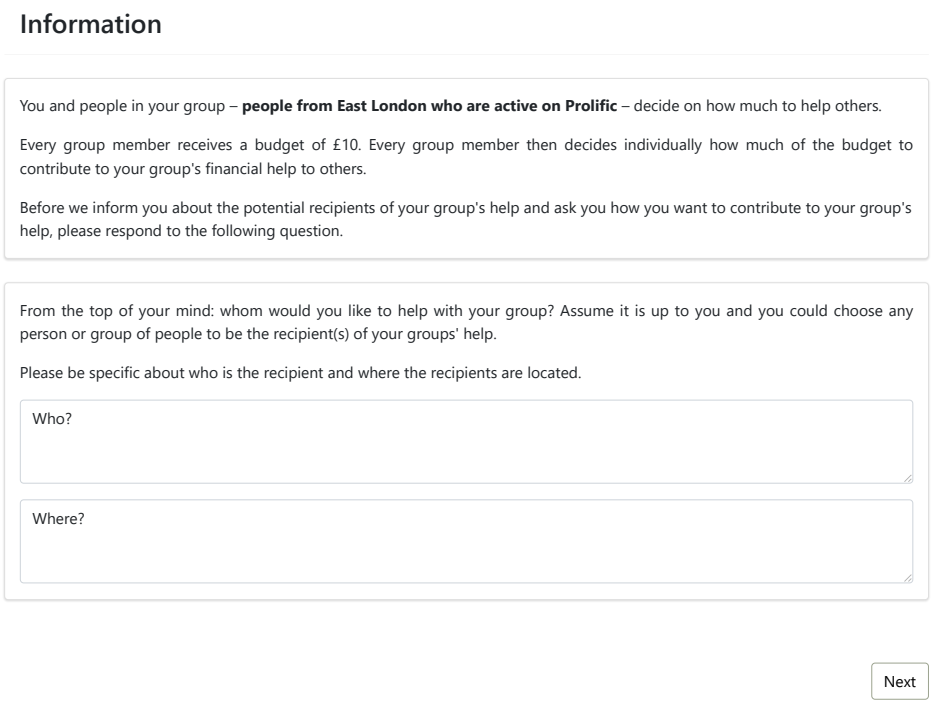
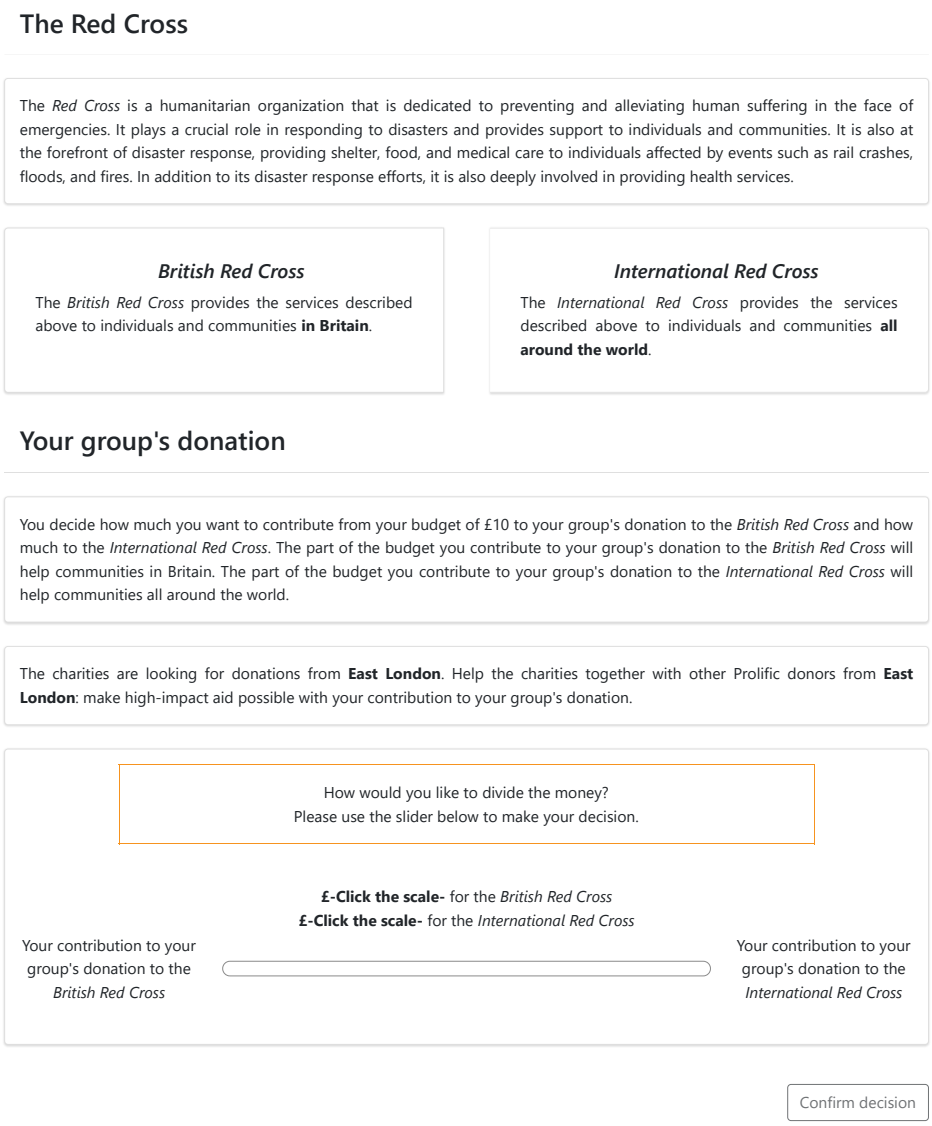


Figure F.18: *Group cue free form* condition screen 3



F.3 Online experiment wave 2 instructions

F.3.1 Local cue survey condition

Figure F.19: *Local cue survey* condition screen 1

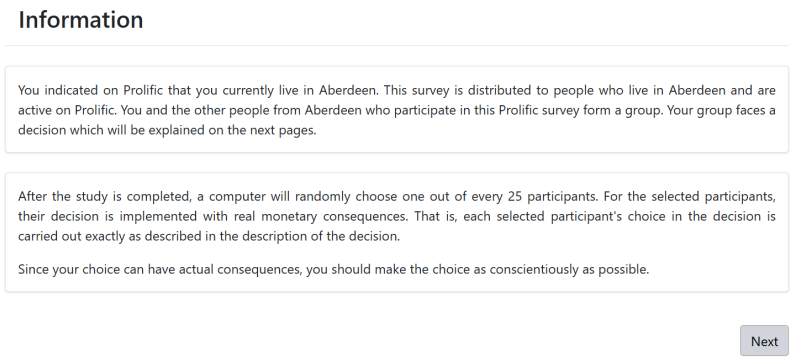


Figure F.20: *Local cue survey* condition screen 2

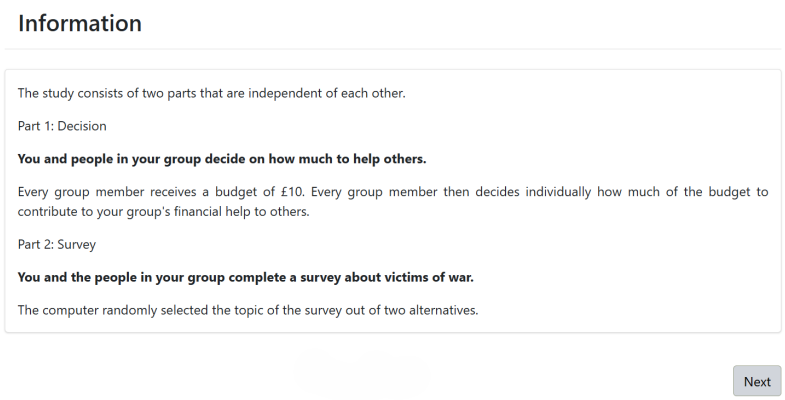


Figure F.21: *Local cue survey* condition screen 3

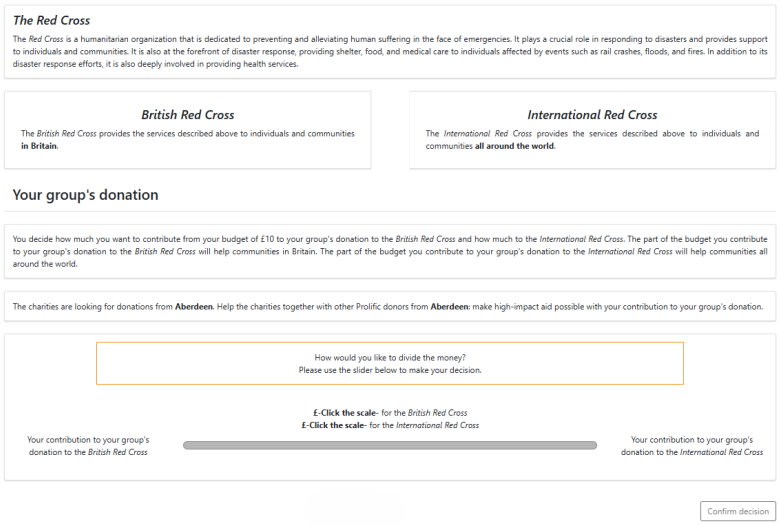
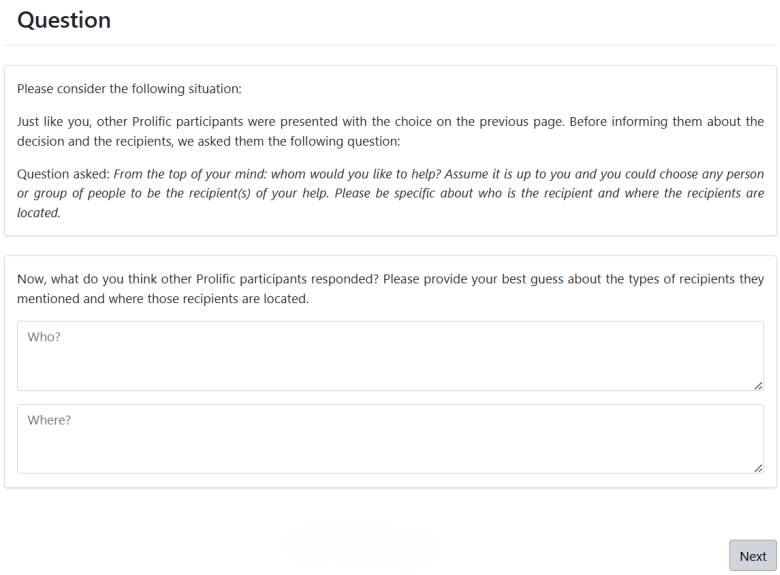


Figure F.22: *Local cue survey* condition screen 4



F.3.2 Global cue survey condition

Figure F.23: *Global cue survey* condition screen 1

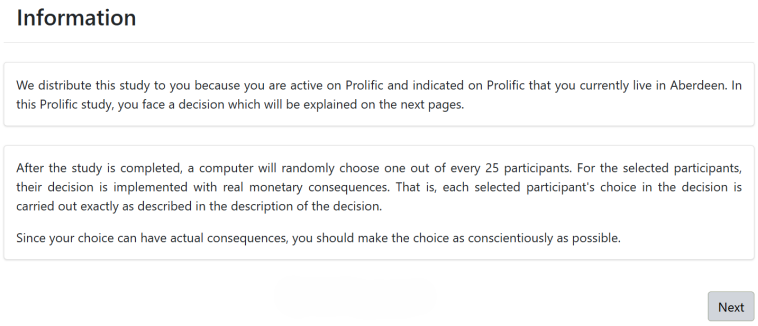


Figure F.24: *Global cue survey* condition screen 2

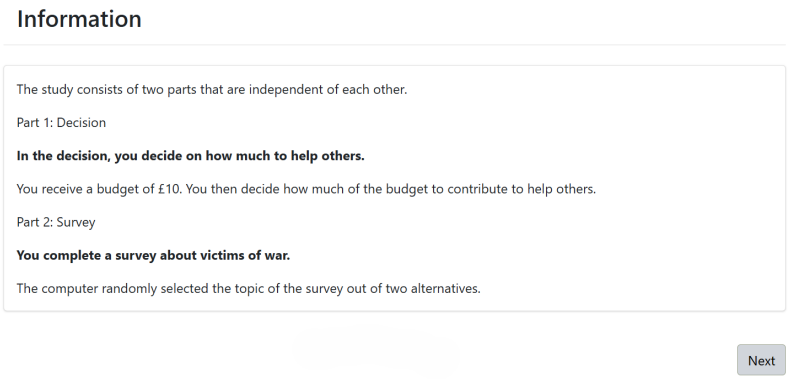


Figure F.25: *Global cue survey* condition screen 3

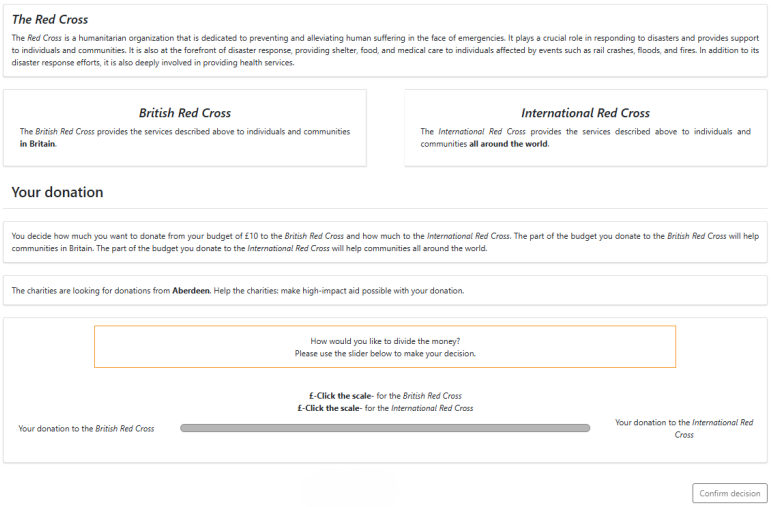
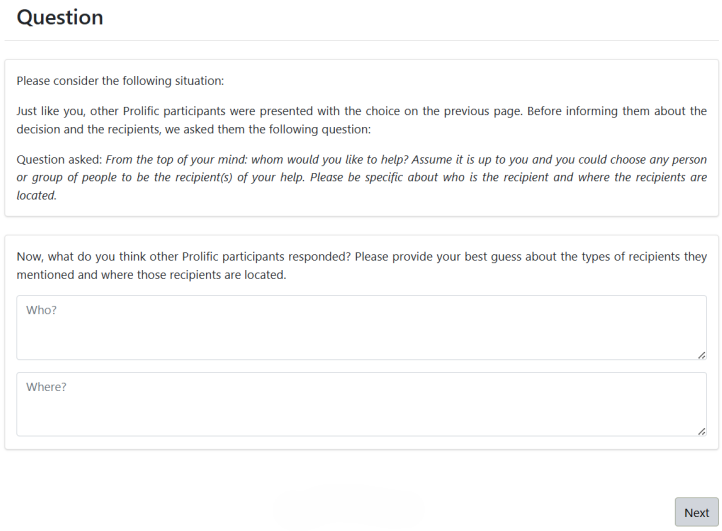


Figure F.26: *Global cue survey* condition screen 4



F.3.3 Local cue + group cue

Figure F.27: *Local cue + group cue* condition screen 1

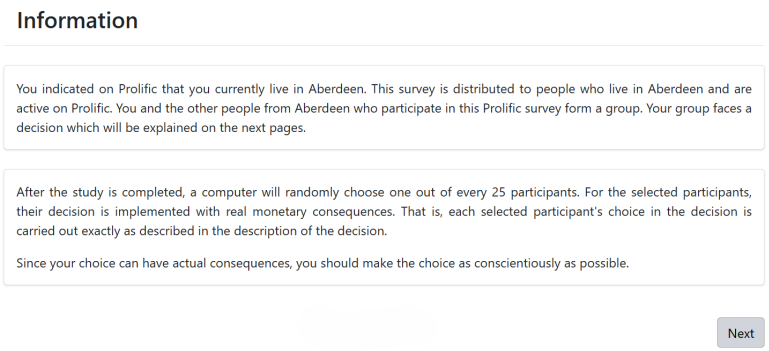


Figure F.28: *Local cue + group cue* condition screen 2

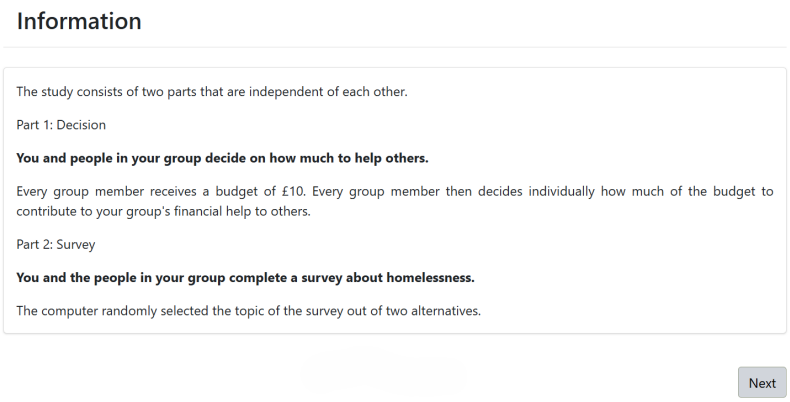


Figure F.29: *Local cue + group cue* condition screen 3

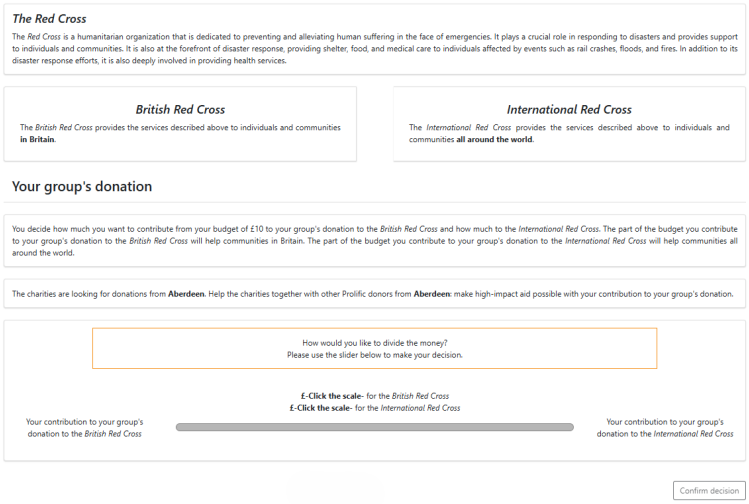
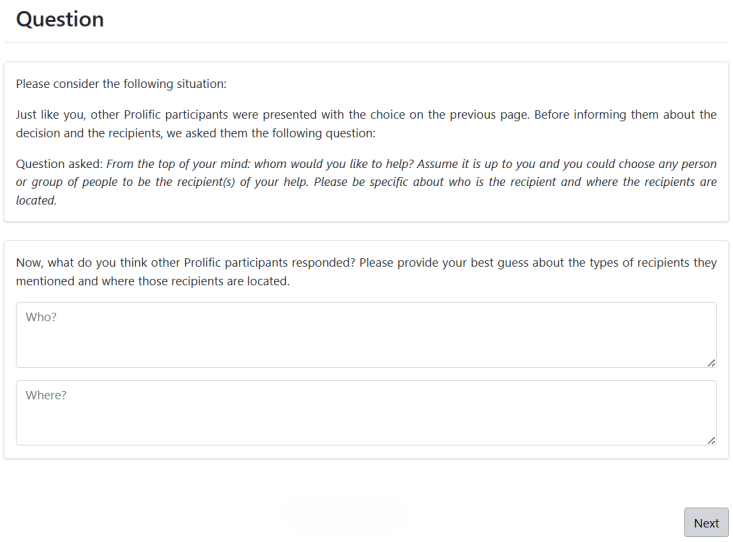


Figure F.30: *Local cue + group cue* condition screen 4



F.3.4 Global cue + group cue condition

Figure F.31: *Global cue + group cue* condition screen 1

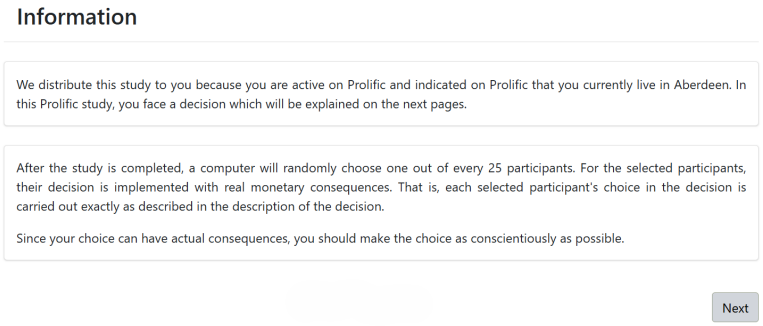


Figure F.32: *Global cue + group cue* condition screen 2

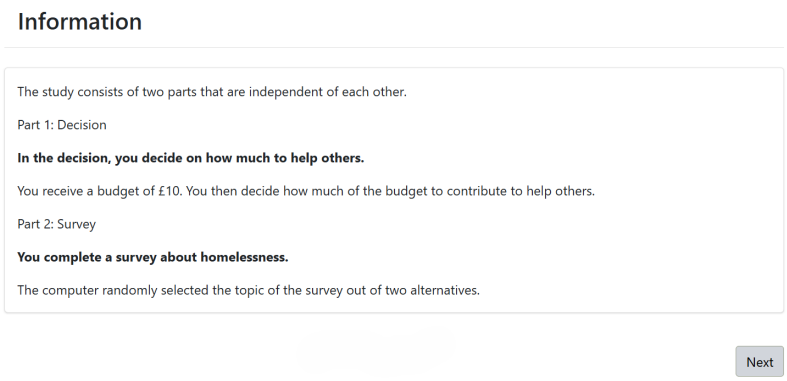


Figure F.33: *Global cue + group cue* condition screen 3

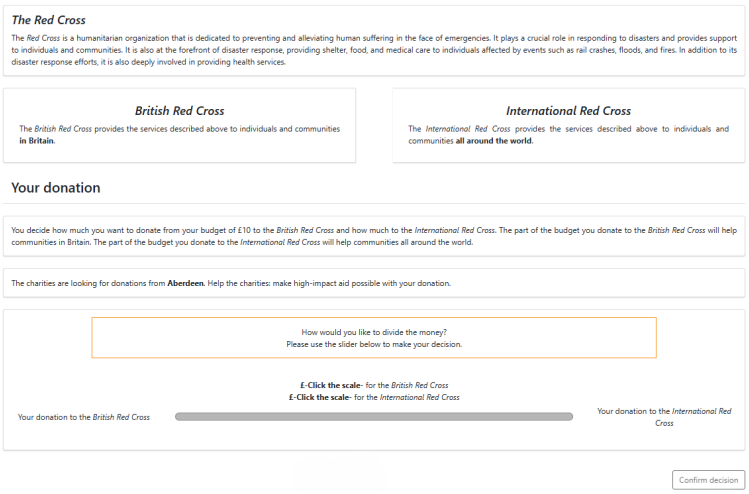


Figure F.34: *Global cue + group cue* condition screen 4