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A series of persuasive events. Sequencing effects of negative and positive messages on party evaluations and perceptions of negativity

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ABSTRACT
We test how party evaluations and perceptions of negativity are affected by sequences of positive/negative persuasive messages. In an experimental survey collected in Denmark, respondents were exposed to either a positive or a negative message on three issues in a random order; this creates a setting where we can test for the effects of eight different sequences of positive and/or negative messages. We find consistent effects. Being exposed to a higher volume of negative messages often depresses evaluations of the target, whereas being exposed to a higher volume of positive messages enhances evaluation of the sponsor. These effects are nuanced by recency effects: when a sequence ends on a negative message, regardless of its overall valence, evaluation of the target is depressed; similarly, negatively valenced sequences harm the target except when the sequence ends on a positive message. Backlash effects are unlikely, and no sequence simultaneously harms the target and promotes a positive evaluation of the sponsor. Finally, negatively valenced sequences of messages enhance perceptions of negativity, whereas positively valenced sequences do not reduce it; this trend is also nuanced by recency effects.

1. Introduction
Parties go negative on their rivals hoping to alter the evaluative judgment of those who are exposed to their messages. This should ideally foster negative feelings towards the target, and translate into electoral benefits for the sponsor when the time is ripe. That’s the theory, anyway.1

In reality, the wealth of existing studies about ‘negative campaigning’ techniques in elections (and beyond) failed to achieve a satisfying consensus on their overall effectiveness: several studies show that negativity might indeed reduce positive feelings for the target
and overall harm its image in the eyes of the voters (Muehling, Vijayalakshmi, and Laczniiak 2016; Pinkleton 1997; Shen and Wu 2002). However, also widespread is research highlighting that negative messages are ‘a two-edged sword that can sometimes cut the sponsor more than the target’ (Shapiro and Rieger 1992, 135; see also Roese and Sande 1993), thus casting doubts on their overall net effect.

Furthermore, many studies have shown that negative campaigning has unintentional systemic effects, which go beyond their intended electoral outcomes; in this case as well, however, those effects are contested. For instance, evidence exists that negative campaigning depresses turnout and mobilization (Ansolabehere and Iyengar 1995), but also that it promotes it (Geer 2006; Martin 2004); similarly, studies show that negativity fosters perceptions of negativity, cynicism, apathy, and a gloomier public mood (Thorson et al. 2000; Yoon, Pinkleton, and Ko 2005), but this ‘corrosive’ effect is discredited elsewhere (Blais and Perrella 2008; Jackson, Mondak, and Huckfeldt 2009).

The questions whether or not persuasive messages framed negatively i) have the intended effect on rival’s evaluations and ii) have the unintended power to alter citizens’ opinions about the political system itself and make them more negative, are thus still up for grabs. In this article, we answer those two questions by taking a step back and focusing more closely on the nature of persuasive messages.

When it comes to the effectiveness of persuasive messages, three components stand out in the literature on social and cognitive psychology: first the volume of messages, that is, the existence of a cumulative effect through which repeated exposure increases their effectiveness (Cacioppo and Petty 1979; Lecheler and de Vreese 2013; Yaveroglu and Donthu 2008); second their valence, that is, the difference between positively and negatively framed messages (Maheswaran and Meyers-Levy 1990); third their order, that is, the fact that specific sequences of messages have differential effects (e.g., primacy or recency effects; Brunel and Nelson 2003; Haugtvedt and Wegener 1994).

If research on political advertising has fully embraced the study of volume and valence (e.g., Dardis, Shen, and Edwards 2008; Fernandes 2013; Shapiro and Rieger 1992; Stevens 2009), surprisingly little is known today about how different sequences of negative and positive messages affect evaluations of those exposed to them. However, assessing the effects of messages sequences has much to contribute to our knowledge of electoral dynamics. We can advance two good reasons to grant special attention to sequences of positive and negative messages and their effects. First, the relationship between political information and citizens’ opinions is necessarily a dynamic one. How easy would it be (as scholars, but also as citizens) if voters were exposed simultaneously to all information at t₀ and asked afterward to make up their minds, at once, by taking into account all information received! This is of course not the case, and what usually happens is a situation in which multiple and contradictory streams of information are treated sequentially by voters, who constantly update their judgments based on the interaction between their predispositions, their currently held beliefs, and the content of the information they are exposed to (Nai, Schemeil, and Marie 2017). Assessing the effects of sequences of information, rather than simply information itself, brings us a step closer to a more faithful understanding of how citizens make up their minds in a complex setting. Second, assessing sequencing effects of positive and negative messages is relevant because modern ‘real-life’ campaigns tend to follow a precise pattern: positive messages are more likely at the beginning of the campaign and negative messages increase in frequency as election day draws near (Elmelund-Praestekær 2011; Nai and Sciarini 2015;
Peterson and Djupe (2005). Informing voters about the validity of their propositions should strategically come first; if parties attack too early they might fail to define their position on important issues in the eyes of the voters. Instead, ‘by waiting to go negative until after they have established themselves in the mind of voters, [parties] may be perceived as more credible, which may increase the veracity of their attacks’ (Damore, 2002, 672, 673). Surprisingly enough, very little evidence exists that such a sequence – a positive start followed by an increased negativity – is an effective strategy overall.

1.1. The Study

We study how sequences of messages affect respondents’ evaluation of party performance, (issue-handling capacities, as described in the literature on party issue ownership; Petrocik, 1996; Seeberg, 2017), and perceptions of negativity, defined as the extent to which respondents feel that politics is characterized by a lot of attacks (Pinkleton and Austin, 2002; Pinkleton, Um, and Austin, 2002). With experimental data gathered in Denmark we test the effects of single-source multi-message sequences – in our case, different sequences of three issue-based messages by Social-Democrats either in defense of their program (positive) or attacking the Liberals (negative) – and focus on three characteristics: volume (cumulative effect of messages going in the same direction), valence (i.e., whether the sequence is positively or negatively skewed), and messages order (recency effects).

We designed a series of three survey experiments (N = 1513) in which respondents (excluding those in the control group) are exposed sequentially to either positive or negative messages on three issues (unemployment benefits, agricultural reforms, and rural development). For each respondent, the order of these three issues is randomly determined; also random is the direction of the treatment (positive, negative) he or she is exposed to. After each treatment respondents are asked to evaluate how the two main parties – Social-Democrats (sponsor) and Liberals (target) – are at handling the issue at stake. At the end of the three experiments, all respondents answered a few questions about the Danish political system used to measure perceptions of negativity. Respondents in the control group are also asked the same questions, but they are not exposed to any positive or negative message.

2. Volume, valence, and order effects

2.1. Volume effects of positive and negative messages

Volume effects simply assume that repeated exposure to messages increases their effectiveness. This assumption is supported by research in social and cognitive psychology (Cacioppo and Petty, 1979) and consumer advertisement (Anand and Sternthal, 1990; Yaveroglu and Donthu, 2008), and might come from the fact that repeated messages are perceived as more valid, and thus imbued with a stronger persuasive effect (Moons, Mackie, and Garcia-Marques, 2009). In the field of (negative) political advertisement several studies also highlight that when respondents are repeatedly exposed to messages with the same valence the effects of such messages increases (Dardis, Shen, and Edwards, 2008; Fernandes, 2013; Schenck-Hamlin, Procter, and Rumsey, 2000).
In an important article, Stevens (2009) makes the case for ‘proportion effects’ of negative information; at constant volume (e.g., X negative messages), the proportion between negative and positive messages should have additional and separate effects (e.g., X negative messages coupled with X positive messages should have weaker effects than when coupled with zero positive messages). Although we fully subscribe to this rationale, our experimental setting is not adequate to test for this supplementary effect of messages volume: because the total number of messages respondents are exposed to is constant (3, see below), an increase in the volume of negative (positive) message necessarily goes hand in hand with an adjustment in their proportion; in other terms, in our data volume and proportion of negative (positive) messages are not measurable independently, and thus separate effects for proportion cannot be tested.

2.2. Valence effects: The different effects of positive and negative messages

Assessing ‘valence’ effects of campaign messages implies, quite simply, modeling different outcomes for negative and positive messages. For the more immediate outcome of party evaluations, negative messages have been shown in several studies to effectively reduce positive feelings for the target and overall harm its image in the eyes of the voters (Pinkleton 1997; Shen and Wu 2002), a finding corroborated by the most recent meta-analysis on the subject (Lau, Sigelman, and Rovner 2007). Beyond these more proximate effects, negative political advertisement has often been shown to enhance cynical views about the political system itself (Schenck-Hamlin, Procter, and Rumsey 2000; Yoon, Pinkleton, and Ko 2005) and a gloomier public mood (Thorson et al. 2000), although this ‘corrosive’ systemic impact of negativity has been questioned since (Blais and Perrella 2008; Jackson, Mondak, and Huckfeldt 2009). Being exposed to negative messages should, to the very least, foster opinions that political competition is characterized by a strong dose of negativity, if not lowering efficacy or boosting apathy (Pinkleton and Austin 2002; Pinkleton, Um, and Austin 2002).

Many studies also suggest that negative messages are counterproductive, and harm the sponsor of the message instead through ‘backlash effects’ (Fridkin and Kenney 2004; Roese and Sande 1993; Shapiro and Rieger 1992), due to the fact that citizens usually dislike negative campaigning techniques (Fridkin and Kenney 2011). You play with matches, you get burned. In the case of issue-based negative messages, as we test here, no such backlash effect should however be expected. Recent studies seem to suggest that backlash is more likely for character attacks than it is for issue attacks (Carraro, Gawronski, and Castelli 2010); furthermore, when existing, backlash effects seem to be especially detrimental to the overall likeability of the sponsor, and not to its perceived competence (Carraro and Castelli 2010); given that we model the effects of issue-based attacks on issue competence, we should not expect any backlash against the sponsor.

When it comes to positive messages, it is rather straightforward to expect a positive effect on evaluations for the sponsor, which is the intended effect. Promoting one’s own agenda and accomplishments should naturally enhance positive evaluations by voters exposed to those messages. There is, finally, evidence that positive messages are also able to drive perceptions of the overall tone of the debate (e.g., Ridout and Fowler 2012). These findings, although less widespread than comparable findings about the nefarious effects of negative advertising, echo the key findings in Ansolabehere et al. (1994), who point to demobilization effects for negative ads but also to mobilization effects for positive ads. Recent research
assessing the specific emotional responses to positive and negative ads also shows this divergence; respondents exposed to negative ads were more likely to feel angry, whereas respondents exposed to positive ads were consistently less likely to report anger (Mattes and Redlawsk 2015). We assume that this opposed reaction to negative and positive ads translates into equally opposed perceptions of negativity, and we thus expect respondents exposed to positively valenced sequences of messages to have a more optimistic opinion about the incidence of negativity in Denmark. If confirmed, in line with research showing that voters tend to prefer positive campaigns (Lipsitz et al. 2005), this would suggest that a reduction in campaign negativity is not the only solution to foster a less cynical view of politics – an increase in positive campaigning would do as well.

2.3. Messages order: Recency effects of positive and negative messages

Beyond the valence of message sequences and the overall volume of positive and negative messages, we test whether their order shapes respondents’ evaluations, in line with research in cognitive psychology showing that ‘the order in which people encounter information may affect persuasion’ (Brunel and Nelson 2003, 330). The specific order within sequences of messages is usually studied by looking at ‘serial position effects’ (Cowan et al. 2002; Li and Epley 2009), that is, specifically where within any unique sequence a precise message appears. Within this framework, recency and primacy effects are usually studied (Haugtvedt and Wegener 1994; Holbrook et al. 2001). Both effects have in common that ‘items at the beginning or at the end of the list are more likely to be recalled than the items in the middle of that list’ (Li 2010, 32). What distinguishes them is that primacy refers to stronger persuasion associated with messages presented at the beginning of a sequence, whereas recency assumes the same for messages at the end of that sequence. In informal terms, this comes down simply as the difference between ‘getting your side of the argument first’ and ‘having the last word’ (Brunel and Nelson 2003, 330).

We expect in our case that information encountered last has a stronger effect on respondent’s evaluations (recency effect). Following the model of ‘on-line’ information processing, individuals form their evaluation about specific issues based on the sequence of information they encounter, and adjust their judgment with any new piece of information received (McGraw, Lodge, and Stroh 1990; Redlawsk 2001, 2002). In this sense, information received last has logically a direct influence on a judgment formed at any given time, given that this judgment reflects a mental ‘tally’ of all the information encountered about the issue and updated with the last information received. Evidence suggest that this effect is particularly strong for individuals low in cognitive abilities (McGraw, Lodge, and Stroh 1990), but it is supposed to exist across the board. The higher persuasive effects of information received more recently is also a key factor in ‘priming’ models (Althaus and Kim 2006; Shen and Wyer 2007), and echoes Zaller’s ‘accessibility axiom’, according to which an information recalled recently to memory is more likely to be retrieved and used when forming a judgment (Zaller 1992). All in all, this bulk of research suggests that ‘the memory representations of recent inputs are assumed to have increased levels of activation’ (Baddeley and Hitch 1993: 148), thus being more likely to matter when an opinion about that issue is asked.

Overall, assuming the existence of sequencing effects beyond volume and valence implies giving a stronger persuasive power to specific messages within the sequence. With this in mind, we could finally expect negative messages to benefit more from sequencing effects
than positive messages, due to the well-known ‘negativity bias’ (Ito and Cacioppo 2005; Ito et al. 1998; Lau 1982). In lay language, this bias exists as the fact that ‘bad is stronger than good’ (Baumeister et al. 2001). More specifically, ‘negative information produces a much stronger psychophysiological response than does positive information’ (Soroka and McAdams 2010: 2), due to the higher relative potency of negative messages compared to positive messages: ‘brief contact with a cockroach will usually render a delicious meal inedible. The inverse phenomenon – rendering a pile of cockroaches on a platter edible by contact with one’s favorite food – is unheard of’ (Rozin and Royzman 2001: 296). Bon appétit.

2.4. Overview of expected effects

The discussion above leads us to expect several effects of volume, valence and order of messages, on both party evaluations and perceptions of negativity. These expectations can be reassumed as follows: first, concerning volume, we simply expect sequences composed of a higher share of messages with the same valence to have stronger effects (e.g., a sequence composed by three negative messages should have a stronger effect than a sequence composed by only one negative message), both on party evaluation and perceptions of negativity.

Second, we expect negatively valenced sequences (that is, sequences composed by at least two negatives messages) to increase perceptions of negativity, and positively valenced sequences to decrease it. Concerning party evaluation, we expect positively valenced sequences to promote good evaluations of the sponsor, and negatively valenced sequences to harm the target; because our treatment is based on issue attacks (and because backlash effects seem to affect especially evaluation of sponsor’s likeability, not competence; Carraro and Castelli 2010), we do not expect any backlash effect for negative sequences (no depressed evaluation of the sponsor). Third, we expect the order of messages to have an effect, and more specifically messages coming at the end of the sequence to have a stronger effect on respondents’ perceptions of negativity and party evaluations (recency effects). Because of the well-known ‘negativity bias’, we expect this recency effect to be particularly strong for negative messages.

3. The experiments

3.1. Data and setting

Data come from a high quality, nationally representative survey collected by the polling company Epinion in Denmark in late October and early November 2016. 1513 respondents completed the websurvey (24 respondents were excluded due to non-compliance).

Denmark is a conservative case study for the effects of negative political messages. Although negative campaigning does exist in Danish elections (Elmelund-Præstekær 2008, 2010; Hansen and Pedersen 2008), its multiparty system means that potential direct returns of attacks are less substantial, and parties have to behave carefully as injudicious attacks could lead to difficulties in post-election bargaining (Walter and van der Brug 2013).
3.2. Experimental design

The survey includes three sequential experimental components, illustrated in Figure 1. We decided to have sequences composed of three messages to ensure that all sequences are either positively or negatively valenced (i.e., there is a majority of positive/negative messages within each sequence). For budgetary reasons, to keep the length of the survey at bay, we did not include more than the minimum three messages (each ‘message’ is a full experimental setting, including evaluation questions; see below). As more sequences would most likely only strengthen our results, we take our three sequence experiment to be a conservative test of our main argument that sequences matter.

In terms of the sequences of the experiment, the sample is first divided into a control group (26% of the sample) and an experimental group (74%). This latter is exposed first to a treatment dealing with one of the three following issues (assigned randomly): unemployment benefits, agricultural reforms, or rural development. Regardless of the issue assigned, respondents are either exposed to a positive message from the Social-Democrats that

![Figure 1. Experimental setup.](image-url)
promotes their performance on the issue, or a negative message from the Social-Democrats that criticizes the Liberals’ performance on the issue. Assignment of a positive or negative message is randomized across respondents. Respondents have then to answer a question about the performance of the two parties (order also randomized) at handling the issue. The second experiment replicates the setup of the first experiment, in that respondents are again randomly exposed either to a positive or a negative message (always from the Social-Democrats), but on a different issue than the first one (chosen randomly among the two remaining issues); they are then asked to evaluate the performance of the two parties (order randomized) at handling this second issue. The third experiment follows again the same setup, for the last remaining issue. These multiple layers of randomization create a setup in which multiple sequences of positive and negative messages exist, across three issues. All respondents are exposed to a message for each of the three issues, but the direction of those messages (positive/negative) and the order of the issues are completely randomized and independent. This experimental setting, built as a sequence of treatment and evaluations, follows thus the model of Step-by-Step (SbS) processes described in Hogarth and Einhorn (1992), in which respondents are assumed to adjust their opinions sequentially and incrementally ‘by each piece of evidence processed’ (1992, 12).

The control group is asked to evaluate the performance of the Social-Democrats and the Liberals at handling these three issues as well (both the sequence of issues and the order of questions about parties are randomized), but without being exposed to neither positive nor negative messages. All respondents in the control and experimental group are asked at the end a series of questions used to measure perceptions of negativity.

3.3. Measures
Treatments are defined as unique sequences of positive and/or negative messages, based on the order of messages respondents have been exposed to in the experimental protocol described above. The setup of three experiments, each characterized with a binary choice of treatment (positive or negative), yields \(2^3 = 8\) possible combinations of messages: Positive–Positive–Positive (PPP); Positive–Positive–Negative (PPN), and so forth.

Perception of negativity is measured through a question asked at the very end of the survey, to all respondents, about the frequency of issue-based attacks in Denmark. The variable ranges between 0 (very low) and 10 (very high) (mean = 7.69, SD = 2.17).

Evaluations of parties’ issue-handling competence is asked after each treatment in the experimental groups and for all respondents in the control group. Given that we are interested in assessing the effect of message sequences, we use the evaluation of both parties regarding the last issue respondents are exposed to (in experiment 3). Regardless of the specific issue, the variables range between 0 (very bad) and 10 (very well) for both parties. The existence of three randomly assigned issues makes it impossible to have a directly related measure for the control group (which is asked to evaluate all three issues, in random order); we thus computed, for each respondent in the control group, the average evaluation across the three issues for both the Liberals and the Social-Democrats, and assigned that value to the variables for respondents in the control group.
4. Results

4.1. Perception of negativity

We first test how different sequences of three positive or negative messages affect perceptions of negativity – that is, to what extent respondents feel that politics in Denmark is characterized by a lot of attacks. Figure 2 plots the effects of the eight possible sequences of three positive or negative messages; dots represent the value of unstandardized regression coefficient that tests for the effect of specific sequences when comparing with the evaluation in the control group (reference category), which was not exposed to any message; a dot in the left-hand (right-hand) area of the graph signals a negative (positive) effect, that is, a lower (higher) perception of negativity in the treatment group than in the control group. Confidence intervals are presented at both 95% (outer limits, pale gray) and 90% (inner limits, dark gray). Full results are reported in the appendix (see online supplementary material) (Table A1). Additional models, also reported in the appendix (see online supplementary material), replicate the analyses by controlling for several covariates.

Overall the effects shown are not extremely strong even when statistically significant, as shown by the scale of the figure. Due to the random allocation of issues and message sequences to respondents, results seem however to point to the existence of combined causal effects for valence and message order.

Negatively valenced sequences of messages (that is, composed by at least two negative messages and up to one positive message) are likely to significantly enhance perceptions of negativity, whereas positively valenced sequences (minimum of two positive messages) do not enhance perceptions of negativity, and the fully positive sequence (PPP) has no significant effect. Two exceptions exist to this trend, both explained by recency dynamics and thus pointing towards the existence of message order effects. First, all negatively

Figure 2. Coefficients plot – The effects of messages sequence on perceptions of negativity.
Notes: Dependent variable measures the extent to which respondents believe that politics in Denmark is characterized by attacks, and varies between 0 'very low' to 10 'very high'. Sequences of messages are unique combinations of positive (P) or negative (N) messages; the order of the messages is reflected in the sequence acronym (e.g., ‘PPN’ means two positive messages followed by a negative one). Confidence intervals are presented at both 95% (outer limits, pale gray) and 90% (inner limits, dark gray). See Table A1 for full models.
valenced sequences increase perceptions of negativity, except when the sequence ends on a positive note (NPN); in this case, no significant effect exists. Second, all positively valenced sequences do not increase perceptions of negativity, except when the sequence ends on a negative note (PPN); in this case, a more pessimistic view is promoted. These two effects combined point towards the fact that the valence of the last message respondents are exposed to matters more in their evaluation than the overall (or average) valence of the sequence. Incidentally, the assumption that sequencing effects are stronger for negative messages seems not to hold here.

Overall, these results should not be overestimated due to the relatively small magnitude of the effects shown. This being said, the relationship between the content of the messages and the nature of the dependent variable (a general statement about politics in Denmark) should normally be indirect at best; showing even minimal effects, and after only three messages, suggests that systemic effects cannot be excluded. With this in mind, the trends discussed above are suggestive of potential detrimental effects of electoral campaigns when excessively negative. As a silver lining, ending on positive notes seems to have the potential to reduce the overall harmful effects of negatively skewed campaigns; given however that parties and candidates tend to increase the volume of negativity towards the end of the campaign (Damore 2002; Elmelund-Præstekær 2011; Nai and Sciarini 2015; Peterson and Djupe 2005), this optimistic note should be taken cautiously.

4.2. Evaluations of target and sponsor of messages

Issue-based campaign messages are, of course, not explicitly intended to foster perceptions of negativity. Although these messages do have such unintentional effects, as shown in the previous analysis, their primary goal is to enhance the reputation of the sponsor (for positive messages) or harm the reputation of the rivals (for negative messages) in the eyes of the voter.

We discuss here three specific effects of different sequences of positive and/or negative messages on party evaluation. First, the design of our experiment allows us to test for volume effects by comparing evaluations after one or multiple exposures to messages with the same tone. More specifically, for each of the three issues, we can compare party evaluations after exposure to one, first treatment (e.g., a negative message in the first experiment) with the same evaluations after exposure to the same (negative) message but as a third treatment, following a sequence of similar (negative) messages. This allows us to test if the opinion of respondents is significantly different after being exposed to one (negative) ad or after being exposed to three (negative) ads. Given that the order of issues (experiments) and treatments (messages) is randomized, we simply have to make sure to compare evaluations on the same issue. Figure 3 provides that comparison, across the three issues, for negative ads. For each issue, presented in rows, the left-hand panel concerns the average evaluation of the sponsor (Social-Democrats) issue-handling competence, whereas the right-hand panel does the same but for the target (Liberals). In each panel, we present the average evaluation for the control group (left column), the average evaluation for respondents exposed to a negative ad on that issue in the first experiment (t1, central column), and the average evaluation for respondents exposed to that same negative messages but in the third experiment, and after being exposed to two additional negative messages beforehand (using our terminology, these respondents are NNN; t3, right column). For each panel, in the figure, the footnotes report
Figure 3. Volume effects of negative messages. Comparing exposure to one and three negative messages, by issue.

Notes: (a) N(control) = 330; N(t1) = 102; N(t3) = 42. Differences: (Control vs. t1: d = 0.01, p = 0.47) (t1 vs. t3: d = 0.25, p = 0.09), (b) N(control) = 360; N(t1) = 103; N(t3) = 45. Differences: (Control vs. t1: d = 0.11, p = 0.15) (t1 vs. t3: d = 0.49, p = 0.00), (c) N(control) = 298; N(t1) = 115; N(t3) = 41. Differences: (Control vs. t1: d = 0.06, p = 0.27) (t1 vs. t3: d = 0.14, p = 0.23), (d) N(control) = 327; N(t1) = 120; N(t3) = 42. Differences: (Control vs. t1: d = 0.03, p = 0.38) (t1 vs. t3: d = 0.23, p = 0.11), (e) N(control) = 300; N(t1) = 108; N(t3) = 42. Differences: (Control vs. t1: d = 0.08, p = 0.25) (t1 vs. t3: d = 0.02, p = 0.46), (f) N(control) = 332; N(t1) = 109; N(t3) = 45. Differences: (Control vs. t1: d = 0.34, p = 0.00) (t1 vs. t3: d = 0.02, p = 0.44).
effect sizes (Cohen’s d) and p-values from t-tests, when comparing two adjacent groups (e.g., t1 and t3).

Results presented in Figure 3 show that volume effects for negativity exists for two issues out of three when looking at evaluations of the target. For both the first and second issues, being exposed first to a negative ad does not substantially decrease evaluations of the Liberals, but being exposed to three negative ads does. For unemployment, the effect is particularly strong, and the difference between average scores in the t1 and t3 groups is substantial and significant at \( p < 0.001 \). For agriculture, the difference between those two groups is just outside statistical significance, but evaluation after three negative ads (t3) is significantly lower than the average score for the control group (whereas there is no significant difference between the control group and t1). We do not find volume effects for the third issue (rural development), due to the fact that the first negative message at t1 already substantially and significantly decreases positive evaluations of the target.

Figure 4 replicates the same analyses, but this time by focusing on the volume of positive messages. As for negative messages, a higher volume of positive messages matters in two issues out of three when looking at effects for the sponsor. For the first issue, a positive evaluation of the sponsor is significantly improved after exposure to three positive messages (t3, PPP), whereas there is no significant difference between only a single exposure (t1>) and the control group. A similar trend exists for the third issue (rural development), although the difference between t1 and t3 is outside statistical significance. No substantial difference between the three groups exist for the second issue.

Turning to valence and sequencing effects, we now replicate the analyses discussed above by focusing on how respondents evaluate the performance of the two parties (Liberals and Social-Democrats) on the issues at stake. Remember, for the sake of clarity, that our research design is based on positive or negative messages from the Social-Democrats (sponsor) either defending their program or attacking the Liberals (target). In the analyses described below the dependent variable measures how respondents evaluate the performance of both parties at handling the issue of the third and final message they are exposed to (respondents are exposed to a positive or negative message on three issues, in random order). Figure 5 plots the effects of the eight possible sequences of three positive or negative messages on evaluations of the Liberals (top panel) and Social-Democrats (bottom panel). This evaluation concerns the performance of the parties at handling the last experimental issue (allocated randomly). Full results are reported in the appendix (see online supplementary material) (Tables A2 and A3).

As for the previous analysis, effects are not extremely strong, but suggestive. We find confirmation of valence effects in the most extreme cases, in the sense that the fully negative sequence (NNN) significantly harms the target and the fully positive sequence (PPP) benefits to the sponsor. However, only with a stretch of imagination we can affirm that negatively valenced sequences overall harm the target and positively valenced sequences support the sponsor. More reasonably, we conclude that clear valence effects exist only in combination with volume effects, as shown for the two most extreme sequences. This confirms the role of volume shown in Figures 3 and 4.

Turning to the order of messages within the sequence our results are, finally, suggestive of recency effects, but only for evaluations of the target (Liberals, top panel): when the sequence ends on a negative message the evaluation of the Liberals decreases, even in positively valenced sequences. Furthermore, negatively valenced sequences harm the
Figure 4: Volume effects of positive messages. Comparing exposure to one and three positive messages, by issue.

Notes: (a) N(control) = 330; N(t1) = 118; N(t3) = 13. Differences: (Control vs. t1: d = 0.07, p = 0.26) (t1 vs. t3: d = 0.46, p = 0.07),
(b) N(control) = 360; N(t1) = 119; N(t3) = 14. Differences: (Control vs. t1: d = 0.07, p = 0.25) (t1 vs. t3: d = 0.22, p = 0.22),
(c) N(control) = 298; N(t1) = 92; N(t3) = 17. Differences: (Control vs. t1: d = 0.25, p = 0.02) (t1 vs. t3: d = 0.14, p = 0.30),
(d) N(control) = 327; N(t1) = 92; N(t3) = 16. Differences: (Control vs. t1: d = 0.06, p = 0.31) (t1 vs. t3: d = 0.08, p = 0.38),
(e) N(control) = 300; N(t1) = 93; N(t3) = 9. Differences: (Control vs. t1: d = 0.19, p = 0.04) (t1 vs. t3: d = 0.59, p = 0.15),
(f) N(control) = 332; N(t1) = 96; N(t3) = 11. Differences: (Control vs. t1: d = 0.38, p = 0.00) (t1 vs. t3: d = 0.01, p = 0.48)
Liberals, except when the positive message comes last (NNP). These results echo those discussed above for perceptions of negativity. Again, the assumption that sequencing effects are stronger for negative messages (due to the ‘negativity bias’, as discussed) does not hold. The situation is, however, less clear for evaluation of the sponsor (Social-Democrats, bottom panel), where no clear recency or primacy effects can be identified.

We conclude with three additional observations. First, it is interesting to note that the sequence having the single most harmful effect on the target (Liberals, top panel) outside the fully negative one, is the one where a positive message is ‘wrapped’ between two negative ones (NPN). Some evidence exists about the existence of such ‘wrap’ effects in message
sequences (e.g., Purnawirawan, Dens, and De Pelsmacker 2012), mostly in consumer research. Wrap effects signal a co-occurrence of primacy and recency effects; the first negative (positive) message ‘anchors’ an initial evaluation about the object, and the congruence between the valence of this anchor and the last message simply reinforces the initial impression (Kolomiiets, Dens, and De Pelsmacker 2016). More research is needed to unpack the existence of ‘wrap’ effects for political persuasive messages. If confirmed, however, their effectiveness could advocate for alternative strategies for parties and candidates. Instead of adopting the most common ‘pattern’ of a positive start followed by increased negativity (e.g., Damore 2002; Elmelund-Præstekær 2011; Nai and Sciarini 2015; Peterson and Djupe 2005), parties and candidates would have a better time, if their intent is to harm their rivals, to instead start and finish with targeted issue-based attacks.

Second, our results confirm the absence of backlash effects. Regardless of their volume and position in the sequence, negative issue-based messages are not harmful for the sponsor; the evaluation of Social-Democrats performance at handling the issues at stake is never significantly lower than the evaluation of the control group when respondents are exposed to negative messages. Overall, comparison of results for the two parties seem also to suggest that it is easier to harm the reputation of the rivals than to increase its own reputation in the eyes of the voters – more pathways seem to exist to damage than to promote. Again, the negativity bias might not be innocent here. Third, and finally, no ‘silver bullet’ seems to exist: our results show no sequence that has, simultaneously, a damaging effect for the target and a positive effect for the sponsor. Furthermore, comparing the number of sequences that significantly differ from the control group in the two panels in Figure 5, our results suggest that there are more pathways to harm the rivals than to promote the sponsor.

5. Discussion and conclusion

Studying sequencing effects of negative and positive messages has much to contribute to our understanding of campaigning effects. Existing literature on the intended and unintended effects of negative messages yields so far inconclusive results, perhaps due to the fact that the effects of negative (positive) messages are rarely studied within a dynamic context. A focus on the effects of sequences of messages makes furthermore much sense in light of existing literature showing that campaigns in modern democracies seem to follow a common pattern, where a positive start is followed by an increased negativity (Elmelund-Præstekær 2011; Nai and Sciarini 2015; Peterson and Djupe 2005).

Through data from a series of experiments on a representative sample of Danish respondents, we tested for the effects of sequences of three positive and/or negative persuasive messages on party evaluations (both target and sponsor of those messages), and the overall level of respondents’ perceptions of negativity. Our results show globally rather weak effects; magnitude of effects notwithstanding, the direction and significance of several effects is noteworthy. Overall, our analyses suggest five trends, that can be summarized as follows:

1. Negatively valenced sequences of messages enhance perceptions of negativity (that is, the feeling that there are too many attacks in Danish politics), whereas positively valenced sequences do not reduce it. This trend is nuanced by recency effects: negative sequences that end on a positive message do not increase perceptions of negativity (and the other way around for positive sequences);
(2) Turning to effects on party evaluation: Concerning volume, in many cases being exposed to a higher volume of negative messages depresses evaluations of the target, whereas being exposed to a higher volume of positive messages enhances evaluation of the sponsor. Valence effects exist only in combinations with a higher volume of messages;

(3) Concerning message order within the sequence, recency effects exist for the evaluation of the target: when a sequence ends on a negative message, regardless of its overall valence, evaluation of the target is depressed. Furthermore, negatively valenced sequences harm the target except when the sequence ends on a positive message.

(4) No backlash effect was found. Regardless of volume and position in the sequence, negative messages do not harm the sponsor;

(5) No silver bullet seems to exist. We did not find any sequence that simultaneously harms the target and promotes a positive evaluation of the sponsor. Overall, more pathways seem to exist to harm the target than to promote the sponsor.

These results are but a preliminary step towards a more complete understanding of sequencing effects for negative and positive messages, and much remains to be done. First and foremost, a daunting task going forward is to translate these results into a real setting, by taking into account how the actual ‘sequences’ of messages voters are exposed to during a campaign affect the evolution of their attitudes and opinions – thus adding a dynamic and sequential perspective to observational studies linking volume of information to voter responses (e.g., Blackwell 2013). Within such a real-life setting, the effect of single identifiable messages (or specific sequences of messages) is likely to be weaker than in an experimental setting – in this sense, the results discussed in our article should not be overestimated. Nonetheless, voters in real-life settings are likely exposed to more intense, longer, and ‘ nastier’ sequences of messages than the ones used in our study, in which case our results are also, somehow, representing a conservative estimation.

Within the setting of experimental studies, a limitation of our study is that, due to the way the experiment was designed, we were only able to test for the effectiveness of messages from a single source (the Social-Democrats); whether similar sequencing effects exist when multiple sources are tested can only be speculated. Replicating our results in a multi-source setting seems, however, attractive for at least three reasons: first, this would allow testing for the sequencing effects of contradictory messages (e.g., a negative message attacking party A followed/preceded by a positive message promoting the same party); much evidence exists in consumer research that ‘two-sided’ sequences of messages have unique effects on those who are exposed to them (e.g., Eisend 2006; Lecheler and de Vreese 2013). Second, testing for messages from multiple opposed sources would allow to efficiently test for the effects of counter-attitudinal messages, that is, messages whose sponsor does not align with the respondents’ ideological dispositions (e.g., Nai, Schemeil, and Marie 2017). Third, good reasons exist to expect a reinforcement effect when multiple sources promote the same message (or sequence of messages); being exposed to congruent messages from different sources increases their efficacy, due to conformity pressures (Harkins and Petty 1981). This could be especially important in a multiparty system, where different parties can align their campaign strategies and ‘ gang up’ against a common rival.
Notes

1. For an overview, see Nai and Walter (2015).
2. Some evidence exists that excessive repetition leads to tedium and thus to decreased efficacy (Cacioppo and Petty 1980; Eisend 2006); our experimental setting, based on only three messages, is however insufficiently developed to test for this additional expectation of a ‘ceiling’ effect.
3. Based on a Bayesian updating model (Achen 1992), an alternative argument would be that the timing of information has no impact on respondent evaluations – voters, according to these models, update their beliefs about a specific issue (e.g., party identification) based on the ‘net balance’ between positive and negative information about that issue (Grynaviski 2006). However, some evidence exists that Bayesian models are less efficient in settings where a judgment is asked after exposure to counterfactual information (Kim, Taber, and Lodge 2010), which is an important feature in our design.
4. The respondents were randomly selected from Epinion’s online ‘Panel on Denmark,’ which contains 170,000 active users. From this pool, a representative sample of the Danish population on gender, age, region, and education can be drawn. Our data have not been weighted. In our sample, 51.8% are men and the average age is 50.8 (respondents had to be eligible to vote, i.e., 18+). In the Danish 18+ population, 49.7% are men and the average age is 48.9. Respondents for the ‘Panel on Denmark’ are recruited from 150 to 200 different homepages – the homepages change over time and until now, Epinion has used more than 1,700 homepages. All Danish visitors to these homepages are asked to complete a survey to evaluate this homepage, and some of these visitors are subsequently invited to join the ‘Panel on Denmark.’ The diversity of these recruitment home pages helps to ensure that a representative sample can always be extracted from the ‘Panel on Denmark.’ Respondents in this ‘Panel on Denmark’ are unpaid, but take part in a ballot every time they complete a survey. Panel-users can only receive a survey every 11th day. As a standard, Epinion sends out two reminders to ensure participation in a survey. Respondents spent nine minutes on average to complete the survey. Much previous research on Danish voters uses Epinion’s ‘Panel on Denmark’ (see for example Stubager and Seeberg 2016).
5. Respondents could be exposed to two types of negative messages, respectively, with and without additional ‘real-world’ information. This latter was framed as ‘neutral’ information from the Danish Statistical Bureau, and takes the form of a graph (e.g., depicting the unemployment rate over time) followed by a comment from an expert in the field to assist interpreting the figure. This additional ‘real-world’ information did not contain any negative message per se. In the study, we do not differentiate between these two types of negative messages (i.e., with and without ‘real-world’ information), and consider them equivalent and treat them as one. A series of robustness tests shows minimal differences in the effects of sequences based on negative messages with or without this additional ‘real-world’ information. We will however highlight those differences when significant or meaningful (see full results in the Appendix [see online supplementary material], Tables A4–A6).
6. Gender (Mean = 0.52; SD = 0.50), age (M = 50.76; SD = 16.58), news consumption (frequency of exposure to newspapers or TV news, form 0 ‘never’ to 10 ‘daily’; M = 8.46; SD = 2.68), and voting choices (40.2% voted for Liberals or coalition party, 27.8% voted for Social-Democrats, and 32.1% voted for another party). Models also include three variables that measure the issue-related emotions felt be respondents; for each issue, the variables vary between 0 ‘very low’ and 10 ‘very high’; due to the nature of the tests we use average levels across the three issues for anxiety (M = 5.90; SD = 2.37), anger (M = 5.40; SD = 2.66), and enthusiasm (M = 1.77; SD = 1.98).
7. This is even more the case when one of the two negative messages is accompanied by a ‘real-world’ information (see Table A5 in the Appendix [see online supplementary material]).
8. For respondents in the control group, the variable takes the value of the average evaluation for the three issues, as described in the methods section.
9. We, however, find two marginal cases in which a backlash effect exists when testing the effect of alternative treatments that include ‘real-world’ neutral information about the issue next to the negative message. Table A6 in the Appendix (see online supplementary material) show
that a backlash effect exists when this additional information is provided at the end of the sequence (NAA), and when all negative messages in the sequence are accompanied by that information (AAA). Existing research highlights that negative messages qualified as relevant are more likely to alter the evaluative judgments of those who are exposed to them than attacks deemed irrelevant (Fridkin and Kenney 2008); perhaps results in Table A6 suggest that something similar is at play here.

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