Multimodal news framing effects
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References


References


Appendices

Appendix A1

Attention check results

65% of respondents passed an instructional manipulation check. 87% and 85% claimed to have been more than moderately attentive to the stimulus and survey questions, respectively. Inclusion or exclusion of relatively inattentive participants did not change the results.

Participant demographics: race, birthplace and education.

78% of participants were white, 8.3% Hispanic, 4.3% black or African American, 4% American Indian or Alaskan native, 0.9% another race, and 4.3% declined to respond.

87.4% of participants were U.S. born, 8.3% foreign born, and 4.3% declined to respond.

Educational background ranged from those with no high-school diploma to those with a doctorate degree, with over a third (36.6%) educated to Bachelor’s degree level.
Appendix A2

Example stimulus from Chapter 2. An incongruent image-text stimulus is shown, combining a risk text with an uncropped obligation image.

Central African Republic: UN ‘may need 10,000 troops’

The UN believes at least 10,000 peacekeeping troops will be required in any force sent to end violence in Central African Republic, the French UN envoy says.

Ambassador Gerard Araud described the bloodshed in CAR as “uncontrollable”. Speaking to reporters, Mr Araud said the African Union force in the country, intending to reach 6,000 troops, “is considered now too low because frankly the situation is very very dire and the country is huge”.

About a million people - 20% of the population - have fled their homes during months of fighting, after rebels seized power in March.

“Terrorising with the threat of violent militancy”

Security Council members have been alarmed by the cycle of vengeance between warring militia in the Central African Republic, says Professor Patrick Larson, chair of international relations at the London School of Economics and Political Science.

“The aggressors in CAR are inciting fear, terrorising others with the threat of violent militancy.” He adds, “There is concern that without an international response the situation will degenerate into a countrywide sectarian divide and anger and violence will spiral out of control.”
“A dangerous proposition”

“There is, however, real scepticism whether international powers will take the risks and contribute to the force. A mission to deliver peace is a dangerous proposition, and the international community is reluctant to accept the hazards of a distant and perilous conflict.” Professor Larson said there is fear that intervention will threaten spreading Islamic extremism across the region, fanning the flames of hatred and violent conflict. France, the former colonial power, currently has 1,600 troops in CAR, working with some 4,000 from African countries.
Appendix A3

Rationale and details of the three pilot experiments used to generate experimental stimuli.

Extra steps were taken to pre-test a number of candidate images and text articles. This was with the aim to ensure that the chosen stimuli depicted the obligation and risk frames and were matched on several measures of stimulus appraisal. These included arousal, valence, salience, ambiguity, complexity, and credibility. These stimulus characteristics have been shown to influence framing effects (e.g., Schuck & de Vreese, 2006), memory (e.g., Oschner, 2000), and emotional responses (e.g., Russell, 1980; Ewbank, Barnard, Croucher, Ramponi & Calder, 2009). By matching these variables across experimental conditions, I was able to rule out the influence of many extraneous factors of particular importance when considering visual effects. Therefore a strong claim can be made that results were a product of the framing manipulation. The following paragraphs describe steps taken to select the stimuli via three pilot experiments.

Pilot experiment 1: Image selection

I evaluated ten candidate images from the obligation frame that clearly depicted victims of the conflict in CAR and ten from the risk frame that clearly depicted belligerent militants in CAR. N = 286 American adults were recruited via Amazon Mechanical Turk. Participants viewed one randomly selected obligation and one risk image, after which they were asked to judge the extent each image conveyed the “obligation to intervene” in the conflict in CAR and the “risks of intervening” in the conflict. Several measures of participant’s appraisal of the image were also taken. These included appraised arousal (“the image made you calm – alert”), valence (“the image was negative – positive”), salience (“the image was attention-grabbing”), ambiguity (“the situation conveyed in the images was ambiguous – clear”), visual complexity (“the image was visually simple – complex”), and credibility (“the image was similar to other images you see in war and conflict news reporting”). All measures used a 1-7 Likert scale. Aside from one exemplar which was excluded from further comparisons, all images in the obligation category conveyed significantly more obligation than risk (all $p < .03$), and all images in the risk category conveyed significantly more risk than obligation (all $p < .002$). Images were then compared on the image appraisal measures and one was selected from each framing category that were matched on all measures (all $p > .3$).

Pilot experiment 2: Maximising image-text congruence

A student sample ($N = 159$) were asked to list their thoughts and feelings they had whilst viewing the 20 images rated in pilot experiment 1. The most frequently listed thoughts for the selected obligation image included words such as pitiful, poor
conditions, poverty, hunger, sorry and compassion. Most frequently elicited thoughts for the risk image included violence, weapons, war, fear, danger, anger and scared. Next, three candidate stimulus articles were downloaded from the BBC website. These were shortened and several words and phrases were modified to achieve an obligation and risk version of each. These modifications used phrases typical of the obligation and risk frames and the key words and phrases from the thought listing output. In addition, the obligation articles emphasised the plight of victims like those depicted in the obligation image, and the risk articles described the terror caused by militants like those depicted in the risk image. A control version of each article was also created by removing the words and phrases used to achieve the frame manipulations.

Pilot experiment 3: Text selection
The three candidate articles with an obligation, risk and control version of each (nine articles in total) were included in the final pilot experiment. Participants were again recruited via Amazon Mechanical Turk (N = 261) and asked to complete the same measures as in pilot experiment 1. Again, I aimed to select an article that best met the frame manipulations and that was matched on the stimulus appraisal measures. An article that best met the selection criteria was chosen, with the obligation version rated as conveying significantly more obligation than risk and vice versa for the risk version (both p < .004). To assess the control version, a difference score was generated by subtracting the risk rating from the obligation rating for each participant so that positive scores indicated perceived obligation and negative scores indicated perceived risk. The mean difference score for each version of the article was as follows: obligation (M = 3.07, SD = 2.13), control (M = 0.86, SD = 2.12), risk (M = -1.33, SD = 2.43).

Importantly, there was a significant difference between the obligation and risk frame manipulations (p < .001) and the control article achieved a good balance, almost exactly between the obligation and risk versions. Furthermore, the difference between the control compared to the obligation and risk conditions was strongly significant (control vs. obligation, p < .001; control vs. risk, p < .001). Finally, but importantly, each version of the article were matched on all stimulus appraisal measures – arousal, valence, salience, ambiguity, complexity and credibility (all p > .1).
Appendix A4

Additional analyses showing the mechanisms of framing effects for support for intervention in the image-text combination conditions.

This appendix supplements the ‘Indirect effects of emotions’ subsection of the Results section. The aim is to provide additional insights on the emotional and cognitive consequences of images and text that are beyond the scope of the main study, but which can inform future research on the mechanisms of multimodal framing effects. Shown here are moderated mediation of participants’ support for intervention in the image-text combination conditions. The results, showing indirect effects of emotion conditioned (on the b-path) on participants issue-specific knowledge, are described below.

Moderated mediation results

As in the main study, conditional indirect effects were assessed using Hayes PROCESS-macro in SPSS (Hayes, 2013, model 14) and 95% bias-corrected bootstrap confidence intervals based on 10,000 bootstrap samples were used for statistical inference.

For the main effect of image frame, there was a conditional indirect effect of anger on participants’ support for intervention. Those who viewed a stimulus with an obligation image experienced increased anger which in turn increased support for intervention, but only for those with low knowledge of the conflict in CAR. This is shown in Figure 1 and Table 1a.

For the main effect of text frame, there was a conditional indirect effect of fear on participants’ support for intervention. Those who viewed a stimulus with a risk image experienced increased fear which in turn decreased support for intervention, but only for those with low knowledge of the conflict in CAR. This is shown in Figure 2 and Table 1b.
Appendix A3, Figure 1. Mediation model for the main effect of image frame in the image-text combination conditions. Showing the indirect of anger conditioned on the b-path by participants' issue-specific knowledge. Unstandardized beta coefficients are reported, *p < .05, **p < .01, ***p < .001. The confidence interval for the conditional indirect effect of anger (b = .02, SE = .01) was entirely above zero (.0013 to .0497).

Appendix A3, Figure 2. Mediation model for the main effect of text frame in the image-text combination conditions. Showing the indirect of fear conditioned on the b-path by participants' issue-specific knowledge. Unstandardized beta coefficients are reported, *p < .05, **p < .01, ***p < .001. The confidence interval for the conditional indirect effect of fear (b = .02, SE = .01) was entirely above zero (.0013 to .0587).
Table 1. *Statistical inference for conditional indirect effects.*

a) Main effect of image frame: Effect of anger on support for intervention at different levels of issue-specific knowledge.

<table>
<thead>
<tr>
<th>Moderator value</th>
<th>Conditional indirect effect at mean and ±1 SD</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 673)</td>
<td>Boot effect</td>
<td>Boot SE</td>
<td>95BCI-LL</td>
</tr>
<tr>
<td>Low knowledge, -1 SD (1.20)</td>
<td>-.04</td>
<td>.02</td>
<td>-.1034</td>
<td>-.0035</td>
</tr>
<tr>
<td>Average knowledge (2.74)</td>
<td>-.01</td>
<td>.01</td>
<td>-.0481</td>
<td>.0050</td>
</tr>
<tr>
<td>High knowledge, +1 SD (4.28)</td>
<td>.02</td>
<td>.02</td>
<td>-.0100</td>
<td>.0707</td>
</tr>
</tbody>
</table>

b) Main effect of text frame: Effect of fear on support for intervention at different levels of issue-specific knowledge.

<table>
<thead>
<tr>
<th>Moderator value</th>
<th>Conditional indirect effect at mean and ±1 SD</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 445)</td>
<td>Boot effect</td>
<td>Boot SE</td>
<td>95BCI-LL</td>
</tr>
<tr>
<td>Low knowledge, -1 SD (1.17)</td>
<td>-.05</td>
<td>.03</td>
<td>-.1358</td>
<td>-.0078</td>
</tr>
<tr>
<td>Average knowledge (2.67)</td>
<td>-.02</td>
<td>.02</td>
<td>-.0773</td>
<td>.0014</td>
</tr>
<tr>
<td>High knowledge, +1 SD (4.16)</td>
<td>.00</td>
<td>.02</td>
<td>-.0357</td>
<td>.0666</td>
</tr>
</tbody>
</table>

*Note*. Bootstrap confidence intervals (95BCI) that do not contain zero within their lower (LL) or upper (UL) limit indicate significant moderation.

The results in this appendix show that framing effects occurred indirectly through participants’ emotional responses, which influenced participants’ support for a policy of intervention conditionally depending on their knowledge of the issue. Knowledge effectively dampened the framing effects observed by moderating the influence of emotions on policy support. Furthermore, this supports the proposal in the main chapter that when text exerts a framing effect, the psychological mechanisms involve relatively more cognitive processing dependent on prior knowledge than framing effects driven by an image (Sparks et al. 1998).
Appendix B1

Stimulus from Chapter 3 Experiment 1. An incongruent image-text stimulus is shown, combining a risk image with an obligation text. Other stimuli from study 1 can be requested from the authors.

Central African Republic: UN ‘may need 10,000 troops’

The UN believes at least 10,000 peacekeeping troops will be required in any force sent to end sorrow in Central African Republic, the French UN envoy says.

Ambassador Gerard Araud described the humanitarian crisis in CAR as “unbearable”. Speaking to reporters, Mr Araud said the African Union force in the country, intending to reach 6,000 troops, “is considered now too low because frankly the situation is very very dire and the country is huge”. About a million people - 20% of the population - have fled their homes during months of misery, after rebels seized power in March.

“Helpless to crippling poverty and hunger”
Security Council members have been alarmed by the cycle of vengeance between sectarian groups in the Central African Republic, says Professor Patrick Larson, chair of international relations at the London School of Economics and Political Science.
“The people in CAR are living in piteous conditions, helpless to crippling poverty and hunger.” He adds, “There is concern that without an international response the situation will degenerate into a countrywide sectarian divide and misery and despair will spiral out of control.”

“Show compassion”

“There is now a real obligation for international powers to show compassion and contribute to the force. A mission to deliver peace is a realistic proposition and the international community have a responsibility to protect the population and end their grief.” Professor Larson said there is hope that intervention will curb a spreading refugee crisis in the region, providing much needed humanitarian relief and preventing famine. France, the former colonial power, currently has 1,600 troops in CAR, working with some 4,000 from African countries.
Appendix B2

Stimulus from Chapter 3 Experiment 2, and Chapter 4. An incongruent image-text stimulus is shown, combining a victim image with an intruder text. The other stimuli from study 2 (including the Dutch versions) can be requested from the authors.

EU immigration crisis: More efforts needed to share the burden in 2016

In the summer of 2015 Europe experienced the highest influx of refugees since the second world war. Most have come from war-torn Syria where a third of the population has been displaced, and over 4 million have fled the country.

Antonio Guterres, head of the UN refugee agency, said “more efforts are needed to share the burden but there are clear anti-foreigner sentiments.” “Many governments in Europe are rigidly interested in preventing intrusions by illegal immigrants. Some will use their armed forces to protect their borders.”

Germany took in approximately 800,000 people in 2015 – more than the entire EU in 2014 – only to later impose temporary border controls. As yet, no EU-wide solution has been found.
Appendix B3

Details of the scales used in the study. Including the processing pathway manipulation check scale, and the processing style variables used for moderation analyses.

Processing pathway manipulation checks
Four items were adapted from Wolski and Nabi’s (2000) message processing depth scale, designed to assess ability, motivation and overall depth of information processing. The four items included: *I was motivated to read this article; I paid close attention to each point that was made; I thought deeply about the contents; my mind wandered as I read the article* (last item reversed; 1 = *strongly disagree*, 7 = *strongly agree*; α = .81). In Experiment 1, processing depth was significantly different across the processing conditions, $F(2, 1241) = 157.05, p < .001, \eta^2_p = .20$. Stimuli were processed most deeply in the systematic processing condition ($M = 5.46, SD = 1.17$), followed by the control condition ($M = 5.28, SD = 1.28$), followed by the heuristic condition ($M = 3.97, SD = 1.15$). Post-hoc tests showed that all differences were significant (all $p < .03$), suggesting that the processing manipulations were successful.

The same items were used to assess the success of the processing pathway manipulations in Experiment 2. The outcome of these checks are included in the main text.

Moderator scales
This section includes details of the information processing style moderator variables used in Experiment 1 and Experiment 2. Reliability scores for these scales from both experiments are detailed in the main study.

Need for Cognition
As detailed in the chapter, the 18-item Need for Cognition scale was used in Experiment 1 (Cacioppo, Petty & Fao, 1984). A 6-item version used in previous studies (Bakker & Yelkes, 2016; Bullock, 2011) was used in Experiment 2. The 6-item version is shown in the table below. Dutch translations of these items were taken from the Longitudinal Internet Studies for the Social sciences (LISS; 2015) study panel (www.lissdata.nl/dataarchive/study_units/view/639).
### 6-item Need for Cognition (from Bullock, 2011)

<table>
<thead>
<tr>
<th>Item</th>
<th>Wording</th>
<th>Response scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Some people prefer to solve simple problems instead of complex ones. Other people prefer to solve complex problems instead of simple ones. What is your preference?</td>
<td>Greatly prefer simple problems (1); greatly prefer complex problems (7).</td>
</tr>
<tr>
<td>2</td>
<td>How much pleasure do you get from thinking?</td>
<td>None (1); a great deal (7).</td>
</tr>
<tr>
<td>3</td>
<td>Some people prefer to think about small, daily projects. Other people prefer to think about big, long-term projects. What is your preference?</td>
<td>Greatly prefer small, daily projects (1); greatly prefer big, long-term projects (7).</td>
</tr>
<tr>
<td>4</td>
<td>How much do you like or dislike thinking long and hard for hours?</td>
<td>Dislike a lot (1); like a lot (7).</td>
</tr>
<tr>
<td>5</td>
<td>How much do you like or dislike having responsibility for handling situations that require lots of thinking?</td>
<td>Dislike a lot (1); like a lot (7).</td>
</tr>
<tr>
<td>6</td>
<td>After finishing a task that required a lot of mental effort, do you feel more relieved than satisfied, or more satisfied than relieved?</td>
<td>Much more relieved than satisfied (1); much more satisfied than relieved (7).</td>
</tr>
</tbody>
</table>

### Need for Affect

The 11-item need for affect scale (Sojka & Giese, 1997) was used in both Experiment 1 and Experiment 2. Examples of scale items include, “I am a feeling person,” “I make decisions with my heart,” and “I enjoy trying to explain my feelings – even if it’s only to myself” (1 = Strongly disagree, 7 = Strongly agree).

### Visual-Verbal Style of Processing

Preference for a visual or verbal information processing style was assessed in Experiment 1 using the 22-item Style of Processing scale (Childs, Houston & Heckler, 1985). The scale comprises a visual subscale (11 items) and a verbal subscale (11 items). These are recoded in the full scale such that low scores indicate a preference for visual processing and high scores a preference for verbal processing.

Due to time and resource restrictions in Experiment 2, the SoP scale was reduced to 12 items. A combination of methods were used to inform this decision, including content validity checking, and principal components analysis and reliability analysis using the data from Experiment 1. Principal components analysis showed that most of the items (16) loaded on two factors concerning (a) mental imagery and (b) word use/enjoyment. These factors closely matched the concept of interest – i.e., the mental use of words and pictures when processing information. Other items, for instance those regarding daydreaming, did not and were discarded. Reliability analysis converged on 12 items that both formed a reliable scale and met the content validity checks. These
comprised six items from the visual subscale and six from the verbal subscale, striking a balance between economy of space and optimization of scale reliability and content validity (Bakker & Yelkes, 2016). The final 12-item scale is shown in the table below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Wording</th>
<th>Visual/Verbal subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I enjoy doing work that requires the use of words.</td>
<td>Verbal</td>
</tr>
<tr>
<td>2</td>
<td>There are some special times in my life that I like to relive by mentally &quot;picturing&quot; just how everything looked.</td>
<td>Visual</td>
</tr>
<tr>
<td>3</td>
<td>I do a lot of reading.</td>
<td>Verbal</td>
</tr>
<tr>
<td>4</td>
<td>I think using mental images and not using words.</td>
<td>Visual</td>
</tr>
<tr>
<td>5</td>
<td>I generally prefer to use a diagram than a written set of instructions.</td>
<td>Visual</td>
</tr>
<tr>
<td>6</td>
<td>I like to picture how I could fix up my apartment or room if I could buy anything I wanted.</td>
<td>Visual</td>
</tr>
<tr>
<td>7</td>
<td>I enjoy learning new words.</td>
<td>Verbal</td>
</tr>
<tr>
<td>8</td>
<td>I find it helps to think in terms of mental pictures when doing many things.</td>
<td>Visual</td>
</tr>
<tr>
<td>9</td>
<td>I like learning new words.</td>
<td>Verbal</td>
</tr>
<tr>
<td>10</td>
<td>When I have forgotten something I frequently try to form a mental &quot;picture&quot; to remember it.</td>
<td>Visual</td>
</tr>
<tr>
<td>11</td>
<td>I prefer to read instructions about how to do something rather than have someone show me.</td>
<td>Verbal</td>
</tr>
<tr>
<td>12</td>
<td>I prefer activities that don't require a lot of reading.</td>
<td>Verbal</td>
</tr>
</tbody>
</table>

Note. Response scale: always false (1); usually false (2); usually true (3); always true (4).
Appendix B4

Details of the pilot experiments used to generate stimuli for Chapter 3, Experiment 2.

Extra steps were taken to ensure that the images and texts used to construct the stimulus articles clearly showed the victim and intruder frames, and also that they were matched on several important and potentially confounding factors. These factors included perceived arousal, salience, ambiguity, complexity, and credibility, which have been shown to influence framing effects (Schuck & de Vreese, 2006), information processing (Lang, 1995), memory (Oschner, 2000) and emotional responses (Russell, 1980). By matching the frame conditions on these variables one can rule out the extraneous influence of these potential confounds, which is particularly important for visual stimuli that by nature are difficult to control in an experimental context. Therefore a strong claim can be made that the results were a product of the framing manipulation. The steps taken to select the stimuli via two pilot experiments are described below.

Pilot experiment 1: Image selection and thought-listing

In the first pre-test I evaluated five images from the victim frame that clearly showed refugees as suffering victims of the crisis, and five images from the intruder frame the clearly showed refugees as burdensome and hostile intruders. N = 110 British adults were recruited via the online panel Crowdflower. Participants viewed four images – two randomly allocated from the victim frame condition and two from the intruder condition. After viewing each image they were asked to rate the extent to which the image showed Syrian refugees attempting to travel to Europe as: (1) victims and (2) intruders. Afterwards the other image appraisal measures were taken: arousal (“the image made you calm – alert”), salience (“the image was attention-grabbing”), ambiguity (“the situation conveyed in the images was ambiguous – clear”), visual complexity (“the image was visually simple – complex”), and credibility (“the image was similar to other images you see in news coverage of the European refugee crisis”). All measures used a 1 – 7 Likert scale. One image was selected from each frame category that differed significantly on the victim and intruder frame rating scales (both p < .001) and that was matched on all of the control measures (all p > .05).

In addition to these measures, participants were also asked to list the thoughts and feelings they had when viewing each image. For the victim images words included sorry, sad, sympathy, desperate, pity and displaced. For the intruder images, listed words included angry, worried, violence, intruders, borders and scared. These words were then used in writing the stimulus texts – described in more detail below. This was done to maximize congruence between the visual and text stimuli.
Pilot experiment 2: Text selection

Three candidate articles were downloaded from the BBC News website. These were shortened and phrases were modified to achieve the victim and intruder framed version of each article. In addition to the words from the thought-listing output described above, reports from the websites of the UN High Commission for Refugees and the Daily Express were used to source words and phrases for the frame modifications. These included words such as protect victims, suffering, humanely, help, sorrow, tragedy and refugee in the victim condition, and protect borders, burden, hostile, violence, intruders and flood of migrants in the intruder condition. A control/balanced version of each article was also created by removing the words and phrases used to achieve the frame manipulations. The articles were then translated to Dutch using the widely accepted translation-back-translation method with the authors resolving any discrepancies. The three articles with a victim, intruder and control version of each (nine articles in total) were included in the pilot experiment. Crowdflower was used to recruit $N = 93$ Dutch adults who were asked to read three articles – one framed version of each article – and completed the same measures as in pilot experiment 1. Again, the aim was to select an article that best achieved the frame manipulations and was matched on the control measures. Since a control version was included for each article, a ‘frame index’ was calculated by subtracting the intruder rating from the victim rating for each participant so that positive scores indicated perception of victims and negative scores indicated perception of intruders. For the selected article, the mean frame index score for each version was as follows: victim ($M = 2.65$, $SD = 2.88$), control ($M = 1.35$, $SD = 3.01$), intruder ($M = -0.50$, $SD = 2.87$). There was a significant difference in frame rating between each version ($p < .001$). Moreover, each version of the article was matched on the control measures – arousal, salience, ambiguity, complexity and credibility (all $p < .2$).

Finally, the framed versions of the images and texts were combined into the congruent and incongruent stimuli, one of which can be viewed at Appendix A2.

Manipulation checks in the main study

Manipulation checks were also included in the main study to assess whether the frame conditions were detected with the images and texts combined in congruent and incongruent pairs. Note that this provides a stricter manipulation check than the pilot experiments above which tested the images and texts in isolation. To do so, the same frame rating measures were collected and a frame index score was again calculated. Stimuli with a victim image ($M = 2.51$, $SD = 2.56$) had a higher frame index score than stimuli with an intruder image ($M = 1.81$, $SD = 2.64$), $F(1, 1223) = 22.40$, $p < .001$. In addition, stimuli with a victim text ($M = 2.43$, $SD = 2.61$) had a higher frame index score than stimuli with a control text ($M = 2.15$, $SD = 2.55$) which were higher than
stimuli with an intruder text ($M = 1.89, SD = 2.67$), $F(2, 1223) = 4.43, p = .012$. This confirms the results from pilot experiments 1 and 2 that the framing manipulations were effective.
Appendix B5

Image-text congruence analysis
The experimental design provided the opportunity to attempt a replication of findings from previous media effects studies of image-text congruence. This specifically refers to the recent studies comparing the effects of congruent and incongruent image-text pairings on opinions and behavioural intentions, rather than earlier literature focusing on memory and learning. To summarize, this work has shown that visual inputs tend to determine behavioural intentions (Seo and Dillard, 2016) whilst text can influence opinions (Powell, Boomgaarden, De Swert & de Vreese, 2015). However, this can depend on the context and the dependent variable (Boomgaarden et al., 2016).

Using the control processing conditions from Experiment 1 and Experiment 2 (i.e., only those participants who experienced no load and no debate manipulation), I assess whether these results replicate in two different samples drawn from different participant pools when reading news articles about different issues. This approach is important for assessing the veracity of previous findings in the literature. Moreover, actual donation behaviour was measured, this goes beyond previous studies using self-reported behavioural intentions.

Analyses were conducted on the data from Experiment 1 and Experiment 2 separately. For Experiment 1 this involved two 2-way ANOVAs: one for each dependent variable – opinion (i.e., support for intervention in the conflict) and monetary donation (to the Red Cross). For Experiment 2 a two-way ANOVA was conducted on the opinion variable (i.e., opposition to refugees), whilst a logistic regression was conducted on the binary donation variable (to Doctors Without Borders). For all analyses, main effects of the image frame (obligation, risk) and text frame (obligation, control, risk) and image*text interaction effects were tested.

Experiment 1
There was a significant main effect of the text frame on participants’ support for intervention, $F(2, 429) = 5.83, p = .003, \eta_p^2 = .026$. Support was lowest in those who viewed a stimulus with a risk text ($M = 4.68, SD = 1.25$), and significantly lower compared to those who read a control text ($M = 4.95, SD = 1.24, p = .068$) and obligation text ($M = 5.17, SD = 1.11, p = .001$). The difference between the obligation and control text conditions did not reach significance at conventional levels ($p = .116$). Shown below in Figure D1. No main effect of the image frame, nor image*text interaction was observed.

For participants’ donations a significant main effect of image frame was observed, $F(1, 402) = 8.42, p = .004, \eta_p^2 = .021$. Those who viewed a stimulus with an obligation image ($M = 15.53, SD = 15.20$) donated more than those who viewed a risk image.
(M = 11.29, SD = 14.08). See Figure D2 below. No main effect of the text frame, nor image*text interaction was observed.

**Experiment 2**

No significant effects of the image and text frames, nor image*text interactions, were observed on the data from Experiment 2.

**Summary**

Findings from Experiment 1 replicate the results of AUTHORS and Seo and Dillard (2016). Opinions were influenced by the frame of the text regardless of the accompanying image. Donation behaviour was determined by the image frame irrespective of the linked text.

However, this was not the case for Experiment 2. Effects of the image and text frames were only observed when the processing pathway manipulations and processing style measures were included in the analyses (i.e., in the analyses presented in the main study).

Taken together, these results provide some corroboration for distinct roles of images and text in framing effects that has been observed in other contexts beyond international affairs news (Seo & Dillard, 2016). However, the null findings in Experiment 2 show that this pattern of results does not hold for all contexts and stimuli. Indeed, it could be that highly salient context of the refugee crisis contributed to this outcome, which discussed further in the Discussion section of the main chapter.
Appendix B5, Figure 1. Main effect of text frame on opinion towards intervention.

Appendix B5, Figure 2. Main effect of image frame on donation behaviour.
Appendix B6

A small selection of online news articles from 2011-16 showing examples of the obligation and risk frames used in Experiment 1.

Libya 2011

Syria 2012-13


Iraq and Syria 2014-16

Appendix C1

Rationale and pre-testing procedure for stimulus selection.

I wanted to ensure that the victim and intruder (and control) framed stimuli depicted these frames but also, importantly, were matched for several potentially confounding factors known to influence framing effects (Schuck & de Vreese, 2006), emotional responses (e.g., Russell, 1988) and information processing (Lang, 1995). These factors included perceived arousal, salience ambiguity, complexity and credibility. In doing so I can be reasonably certain that any differences between the frame conditions are caused by the frame manipulation themselves and not by other confounds. In addition I wanted to ensure that the video and article versions of the stimuli contained the same content as far as possible. This enables us to make a meaningful comparisons of the frames presented in the article and video formats. These goals were achieved through three pilot experiments are described below.

Pilot experiment 1: Video selection

First I collated clips from videos on various news websites and YouTube that showed refugees from the crisis as victims and intruders. For the victim frame this included refugees, especially women and children, suffering tragic conditions – including being huddled into boats, being pulled from the sea and being given medical care and sleeping on streets without proper shelter. For the intruder frame this included large numbers of often hostile adult male refugees who appeared threatening – including hordes of refugees climbing over or under security fences, acting violently towards border security, and large groups walking along the side of a road. These clips were combined to form 15 second segments which were sandwiched between two factual video clips about the crisis which remained the same across all conditions (as described in the main study). In total six candidate victim videos and six candidate intruder videos were taken forward to the pilot experiment. All candidate videos lasted approximately 50 seconds and contained the same structure – factual introduction, framed content, factual conclusion. Background sound was removed from the videos so that participants in the pilot experiment only saw the visual stream without any audio.

N = 236 British adults were recruited via Crowdflower, an online crowdsourcing panel. Every participant was randomly assigned to view one of the six videos in each frame condition – i.e., one victim video and one intruder video. After viewing each video, participants were asked to rate the extent to which the video showed Syrian refugees attempting to travel to Europe as: (1) victims and (2) intruders. Then followed questions assessing the control measures: arousal (“the image made you calm – alert”), salience (“the image was attention-grabbing”), ambiguity (“the situation conveyed in the images was ambiguous – clear”), visual complexity (“the image was visually simple..."
– complex”), and credibility (“the image was similar to other images you see in news coverage of the European refugee crisis”). All measures used a 1 – 7 Likert scale. A victim video and intruder video were chosen that differed significantly in the extent to which they depicted refugees as victims and intruders (both p < .001). Importantly, the selected videos were also matched on all of the control measures (all p > .1).

Pilot experiment 2: Image selection and thought-listing
Screenshots were taken of the framed sections of the videos in order to obtain images to be used in the articles. Five screenshots of the selected victim video and five of the intruder video taken forward for pilot testing. Again, the aim was to select a victim and intruder framed image that differed in their portrayal of the frames but were matched on the control factors. N = 110 British adults were recruited Crowdflower. Participants viewed four images – two randomly allocated from the victim frame condition and two from the intruder frame. The same frame ratings and control measures were asked after participants viewed each image. A victim image and intruder image were selected that differed significantly on the frame rating scales (both p < .001) and that was matched for arousal, salience, ambiguity, complexity and credibility (all p > .05).

In addition to these measures, participants were also asked to list the thoughts and feelings they had when viewing each image. For the victim images words included sorry, sad, sympathy, desperate, pity and displaced. For the intruder images, listed words included angry, worried, violence, intruders, borders and scared. These words were then used in writing the stimulus texts – described in more detail below. This was done to maximize congruence between the visual and verbal stimuli.

Pilot experiment 3: Text selection
Three candidate article texts were downloaded from the BBC News website. These were shortened and phrases were modified to achieve the victim and intruder framed version of each text. In addition to the words from the thought-listing output described above, reports from the UN High Commission for Refugees and the Daily Express were used to source extra words and phrases for the frame modifications. These included protect victims, suffering, humanely, help, tragedy and refugee in the victim condition. And protect borders, burden, hostile, threat and flood of migrants in the intruder condition. A control/balanced version of each article was also created by removing the framed words and phrases. After being translated to Dutch, the victim, intruder and control versions of each of the three candidate articles (nine articles in total) were included in the pilot experiment.

Crowdflower was used to recruit N = 93 Dutch adults who were asked to read three articles – one framed version of each article – and completed the same measures as the previous pilot studies. Again, we aimed to select an article text that best achieved the frame manipulations and was matched on the control measures. To analyse the control version
of each article, a ‘frame index’ was calculated by subtracting the intruder rating from the victim rating for each participant so that positive scores indicated perception of victims and negative scores indicated perception of intruders. For the selected article, the mean frame index score for each version was as follows: victim \( M = 2.65, SD = 2.88 \), control \( M = 1.35, SD = 3.01 \), intruder \( M = -0.50, SD = 2.87 \). There was a significant difference in frame rating between each version \( p < .001 \). Moreover, each framed version was matched on all control measures \( all \ p < .2 \).

To create the audio for the stimulus videos, a professional radio broadcaster was recruited to read the selected texts. When recording these audio clips he made every effort to ensure that his tone of voice remained the same for each of the framed versions.

Finally, the framed versions of the visuals and audio (for the videos) and images and texts (for the articles) were combined into the congruent and incongruent stimuli. All of the video stimuli can be viewed in Appendix C2 below. One article stimulus can be viewed in Appendix B2.
Appendix C2

*Stimulus videos used in the study.*

All six stimulus videos (in Dutch) can be viewed by following the links below.

1. Victim visual – victim audio: https://youtu.be/jkJoJl0Fx6k
4. Intruder visual – victim audio: https://youtu.be/q5gnpjB6cLs
5. Intruder visual – control audio: https://youtu.be/H5aUOsSW3Mw
6. Intruder visual – intruder audio: https://youtu.be/xuAOqUTN7b8
Appendices

English Summary

Words and images in news media play a vital role in defining, or framing, citizens’ understanding of political issues. The European refugee crisis provides a prime example of news frames in action. On the one hand, many news outlets framed refugees in written texts as innocent victims of the Syrian war, alongside images of suffering families sleeping rough or being pulled out of stricken boats. On the other hand, other news media wrote of ‘floods’ of hostile intruders posing a threat to Europe, accompanied by images of aggressive (especially male) crowds. Both still and moving images were an important part of this news coverage – the widespread public outcry to the image of the drowned Syrian boy on a beach in Turkey is testament to this. So far, however, no research exists about how visual and verbal elements in news work together to frame citizens’ understanding of politics.

This dissertation fills this gap by providing first evidence of how images and text combine to deliver multimodal framing effects. This is important since news frames influence the decision making of public and politicians alike, and, in turn, can impact policy-making. To explore the influence of multimodal media over political decision-making, I use three experimental studies employing news coverage about war, conflict and crisis – a prime source of powerful visual news coverage. I measure citizens’ emotional and cognitive responses. And, in turn, how these responses influence political opinions and behaviours (such as support for asylum seekers, and donating money and petition-signing to help refugees). Finally, I examine how the effects of multimodal frames differ in different media formats – news articles and videos. Four key conclusions are drawn from this research:

**Conclusion 1:** When presented in isolation, news images produce stronger effects on political opinions and behaviours than text.

Visuals are more frequently taking centre-stage in news coverage, and often appear in stand-alone image galleries – especially in reporting of conflict and crisis. The second chapter of this dissertation shows that even single images presented in isolation can influence political opinions and behaviours, and in fact are more powerful than news text. For instance, citizens who see an image framing refugees as suffering victims of foreign war are more likely to support military intervention in the conflict than if they read a text with the same frame. Emotions play an important role in these image effects – sympathy evoked helping behaviour and fear triggered avoidance.
Conclusion 2: When images and text are presented together, as they are in a typical news report, the image influences political behaviours, whereas the text determines political opinions. Of course, news articles typically contain an image and text together. A second goal of the second chapter was to investigate how these modalities interact to frame political opinions and behaviour. Findings show that the contribution of visual and textual modalities is nuanced, depending on the outcome variable. Specifically, political behaviours, such as donating money or petition-signing, are driven by the image of an article regardless of the linked text. Conversely, political opinions, for example regarding military intervention in a foreign conflict, are influenced by an article’s text irrespective of the accompanying image. This shows that images and text act differently to frame viewers’ understanding of the news.

Conclusion 3: The effects of news visuals and text occur through more automatic versus systematic information processing pathways, respectively. The third chapter of this dissertation focused on establishing how multimodal news media produce their effects. Results show that images are processed via a fast and automatic information processing pathway, compared to a more systematic and controlled processing of text. This conclusion fits with the intuitive idea that news images are a visual reproduction of reality, are understood quickly, and help the viewer emotionally connect with a story. By contrast, the syntax of a news text can unambiguously relay meaning, but demands more processing effort for a reader to gain an understanding of a story. Using experimental manipulations and individual differences data, this study shows, for the first time, how visual and textual elements of news combine to frame political opinions and behaviours.

Conclusion 4: The effect of textual content is stronger in news articles than news videos, because news articles stimulate deeper information processing. The fourth chapter of this dissertation compares the effects and mechanisms of multimodal news frames in different media formats. News videos are increasingly prominent in online news coverage, with moving images and audio proving a richer and more visual viewing experience than the text and image of a news article. By presenting the same story in different media formats I show that articles produce stronger effects on citizens’ intentions to help refugees compared to news videos. This is because articles allow for deeper information processing compared to videos. As a result, effects of the verbal modality are also stronger in news articles than videos. Although news
organisations are investing more and more resources into news videos, this study shows that they are less impactful than news articles.

People today are bombarded with news images more than ever before, and it is imperative to understand how they interact with text to shape citizens’ understanding of political issues. Taken together, this thesis shows that visuals evoke an emotional reaction which can drive political behaviour. However, visual cues can be overpowered by systematically processed verbal content, especially when presented in news articles compared to videos. I therefore argue that visuals play an important role in connecting with an often politically-detached audience, but that the impact of visuals in the **multimodal** media environment is nuanced. Citizens’ political preferences are not mindlessly given over to their gut-reaction to visual content. Instead, modalities, mechanisms and media formats matter when considering the effects of news frames. This dissertation shows that only by considering news media in their proper **multimodal** context do we achieve a clearer picture of their democratic potential.
Nederlandse Samenvatting

In nieuws media spelen woorden en afbeeldingen een cruciale rol bij het vormen, ofwel framen, van mensen hun begrip van politieke issues. De Europese vluchtelingencrisis is een goed voorbeeld van hoe nieuws frames in de praktijk worden gebracht. Enerzijds worden vluchtelingen in de media beschreven als onschuldige slachtoffers van het conflict in Syrië waarbij gebruik wordt gemaakt van foto's van lijdende families op krakkemikkige boten. Anderzijds wordt een heel ander soort vocabulaire gebruikt in de berichtgeving over vluchtelingen, denk hierbij aan vloedgolven van agressieve indringers die een gevaar vormen voor Europa, vergezeld van foto's met daarop agressieve (voornamelijk mannelijke) groepen asielzoekers. In de beeldvorming van beide frames spelen zowel bewegende beelden als afbeeldingen een belangrijke rol - geïllustreerd door de impact van de foto van het levenloze lichaam van het Syrische jongetje op het strand van Turkije. Tot nog toe is er echter nog geen onderzoek gedaan naar hoe de interpretatie van burgers geframed wordt door de combinatie beeld en tekst in het nieuws.

In deze dissertatie wordt dit gat gedicht door ten eerste inzicht te geven in hoe beeld en tekst samen multimodale framing effecten veroorzaken. Dit is van belang omdat nieuwsframes invloed hebben op de besluitvorming van het publiek, en zo ook politici, waarmee indirect ook de beleidsvorming beïnvloed wordt. Om de invloed van multimodale media op deze politieke besluitvorming te onderzoeken, presenteer ik drie experimentele studies waarin ik gebruik maak van de berichtgeving rondom oorlogs-, conflict- en crisissituaties. Contexten die zich goed lenen voor sterke visuele verslaggeving. Hierbij meet ik de emotionele en cognitieve reacties van mensen. Vervolgens kijk ik hoe deze reacties enerzijds de politieke opinievorming beïnvloeden - zoals bijvoorbeeld het al dan niet verlenen van hulp aan asielzoekers op een nationaal niveau. Daarnaast kijk ik naar de invloed van dergelijke frames op gedrag - zoals het al dan niet zelf doneren van geld aan een goed doel dat zich inzet voor vluchtelingen. Tot slot kijk ik hoe de effecten van multimodale framing verschillen tussen twee vormen van media: nieuws artikelen en video's. Op basis van dit onderzoek worden vier globale conclusies getrokken.

Conclusie 1: Wanneer beelden in het nieuws geïsoleerd worden gepresenteerd, hebben ze een sterker effect op opinievorming en gedrag dan wanneer tekst geïsoleerd wordt gepresenteerd. Steeds vaker nemen beelden een centrale plek in bij berichtgeving in verschillende media. Ook komen beelden steeds vaker geïsoleerd voor in bijvoorbeeld online galerijen, met name in de berichtgeving rondom conflictsituaties. In het tweede hoofdstuk van deze dissertatie wordt laten zien dat ook geïsoleerde beelden politieke opinie en gedrag
kunnen beïnvloeden. Sterker nog, framing via beelden heeft zelfs een sterker effect dan via tekst alleen. Ter illustratie, mensen die een afbeelding zien waarbij vluchtelingen geframed worden als slachtoffers van oorlog, zijn meer geneigd een militaire interventie te steunen dan mensen die een dergelijk geframde tekst lezen. Emoties spelen een belangrijke rol in dit effect - medelijden veroorzaakt meer behulpzaam gedrag, terwijl angst juist leidt tot meer vermijding.

Conclusie 2: Wanneer afbeeldingen en tekst samen gepresenteerd worden, zoals we in de meeste media zien, blijkt dat de afbeelding vooral het gedrag beïnvloedt, terwijl de tekst vooral invloed heeft op de politieke opinie.

In de meeste media zien we dat beelden en tekst samen worden gepresenteerd. In het tweede hoofdstuk zal dan ook aanvullend ingegaan worden op hoe deze verschillende modaliteiten interacteren in het proces van het framen van politieke opinie en gedrag. De resultaten laten zien dat het effect van visuele en tekstuele modaliteiten genuanceerd is, afhankelijk van wat er precies gemeten wordt. Met name politiek gedrag, zoals het doneren van geld of het tekenen van een petitie, wordt bepaald door de gepresenteerde afbeelding, en niet door de tekst. Voor politieke opinie, zoals het al dan niet steunen van een militaire interventie, geldt precies het omgekeerde. Deze opinie wordt bepaald door de tekst, en niet door de gepresenteerde afbeelding. Deze bevindingen laten zien dat afbeeldingen en tekst verschillende effecten hebben op hoe framing het begrip van het nieuws beïnvloedt.

Conclusie 3: De effecten van beelden versus tekst in media vinden plaats in meer automatische versus systematische informatieverwerkingsprocessen.

In het derde hoofdstuk van deze dissertatie ligt de focus op de vraag *hoe* multimodale nieuws media effecten uitoefenen op gedrag en opinievorming. De resultaten laten zien dat afbeeldingen verwerkt worden via een snelle en automatisch route, terwijl verwerking van tekst op een veel systematischere en gecontroleerde manier plaatsvindt. Deze bevinding is in lijn met het intuïtieve idee dat nieuwsafbeeldingen een visuele representatie van de werkelijkheid geven. Deze zijn snel verwerkt en begrepen, en helpen de ontvanger zich emotioneel te binden met het verhaal. Dit in tegenstelling tot een tekst, waarin exacte betekenis van de situatie beschreven kan worden. Hiervoor is wel meer verwerkingscapaciteit voor nodig. Door middel van experimentele manipulaties en individuele verschillen laat deze studie voor het eerst zien *hoe* visuele en tekstuele elementen werken in het framen van opinies en gedrag.
Conclusie 4: Het effect van tekstuele content is sterker in nieuwsartikelen dan in nieuwsvideo’s, omdat nieuwsartikelen en diepere informatieverwerking in gang zetten.

In het vierde hoofdstuk van deze thesis worden de effecten van multimodale nieuwsframes in verschillende mediavormen vergeleken. Steeds vaker zien we nieuwsvideo’s op het internet, waarbij bewegende beelden en audio een rijkere en meer visuele ervaring verschaffen dan tekst met een afbeelding in een artikel dat doen. Door hetzelfde verhaal in verschillende mediaformaten te presenteren, laat ik hier zien dat artikelen een sterker effect hebben op onze intentie om vluchtelingen te helpen dan video’s. Dit kan verklaard worden omdat artikelen een diepere verwerking vereisen dan video’s. Ondanks het groeiend aantal investeringen van nieuwsorganisaties in het verkrijgen van kwalitatieve goede video’s, laat deze studie zien dat deze minder impact hebben dan nieuwsartikelen.

Tegenwoordig wordt men meer dan ooit overspoeld met nieuwsbeelden. Hierdoor is het cruciaal om beter te begrijpen hoe deze beelden in interactie met tekst bijdragen aan burgers’ begrip van politieke vraagstukken. Samenvattend tonen de resultaten van deze dissertatie aan dat visuele informatie een emotionele reactie teweegbrengt, wat vervolgens politiek gedrag kan sturen. Emotionele signalen kunnen echter worden overstemd door systematisch verwerkte verbale informatie, voornamelijk wanneer deze worden gepresenteerd in nieuwsartikelen in plaats van video’s. Op basis hiervan beargumenteer ik dat visuele informatie een belangrijke rol speelt in het verbinden van een vaak politiek ongeïnteresseerd publiek. De invloed van visuele informatie in een multimodale mediaomgeving is echter genuanceerd. De politieke voorkeuren van burgers worden niet simpelweg gestuurd door hun onderbuikgevoelens, of hun ongecontroleerde reactie op visuele informatie. Integendeel, modaliteiten, mechanismen, en mediaformaten spelen een belangrijke rol voor de effecten van nieuwsframes. In deze dissertatie laat ik zien dat we nieuwsbericht in hun daadwerkelijke multimodale context moeten beschouwen om een helder beeld te krijgen van hun democratische invloed.
Acknowledgements on authorship

Chapter 1. Introduction: Framing politics visually and verbally
Thomas Powell

Chapter 2. A clearer picture: The contribution of visuals and text to framing effects
Thomas Powell, Hajo Boomgaarden, Knut De Swert & Claes de Vreese

Study design: all authors. Acquisition of data: TP. Analyses and Interpretation of data: TP. Drafting of the manuscript: TP. Critical revision of the manuscript: all authors.

Chapter 3. Framing fast and slow: The processing of visual and textual framing effects
Thomas Powell, Hajo Boomgaarden, Knut De Swert & Claes de Vreese

Study design: all authors. Acquisition of data: TP. Analyses and Interpretation of data: TP. Drafting of the manuscript: TP. Critical revision of the manuscript: all authors.

Chapter 4. Video killed the news article? Comparing multimodal framing effects in news videos and articles
Thomas Powell, Hajo Boomgaarden, Knut De Swert & Claes de Vreese

Study design: all authors. Acquisition of data: TP. Analyses and Interpretation of data: TP. Drafting of the manuscript: TP. Critical revision of the manuscript: all authors.

Chapter 5. Conclusion: To multimodality and beyond
Thomas Powell
Acknowledgements / Dankwoord

In February 1983, the American rock band Toto reached number one on the US billboard chart (number three on the UK singles chart) with the song “Africa”. The song is about a man’s love of a continent, despite the songwriter having never been there, only relying on what he’s seen on TV and from his imagination. The song’s video is set in a library where a researcher attempts to match a picture of a shield to the book from which it was torn out. African percussion instruments beat to the march of natives from the surrounding jungle as they begin to close in on the library. The steady beat is periodically broken by unusually complex lyrics, that are entirely ill-suited to karaoke. A wailing chorus punctuates the strike of a native’s spear against a bookcase, toppling over a lamp which sets the library on fire. As the beat fades, the library blazes, and the researcher sits safely atop a pile of hardback books.

I have to stretch the metaphor a bit, but Toto’s Africa bears a passing resemblance to my experience of PhD life. It features a steady march, sometimes a slog, broken by wails of joy and frustration. Its inspiration comes from TV images of distant lands. It features a researcher struggling with the meaning of images. It is entirely ill-suited to public performance, or perhaps only in front of close friends. And, most importantly, the protagonist is kept safe from harm by those supporting him. I want to thank those who have supported and inspired me during this period of my life. Thanks also to anyone reading this for putting up with the self-indulgent and over-extended metaphor.

First, I want to say a collective thank you to my supervisors, whose choice to give the PhD position to someone from a different academic background and country (even more different since Brexit) has changed my life profoundly. An extra collective thank-you for putting together such a great project plan, to which I’ve stuck remarkably closely. Your combination of expertise and personalities worked perfectly – I couldn’t have asked for a better team.

Claes, thank you for being such an easy promoter to have – guiding, kicking-up-the-arse, and allowing freedom at exactly the times when needed. Your deep knowledge of and boundless enthusiasm for the field, your people- and organisational-management skills, plus seemingly limitless energy are inspirational. You’ve helped me to kerb my perfectionism without losing an eye for detail. And, for the last few months, you’ve also been a pretty good neighbour.

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Sincere thanks to my committee members – Power Ranger Rens, Ed, Betsy, Stephanie and Bert – for taking the time to read my work and for being part of my PhD defence.

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Lucky for me I’ve found some amazing friends in Amsterdam. The ASCoR cohort (the ‘whoseballs’) have made these years unforgettable – here’s to many more! Shout out to, in no particular order: Carlos, my Casanova, side by side it’s been an incredible journey. Guus, we will fight them on the beaches! Toni, you’ve a massive heart and share my love for horses. Sjoerd, you’re the best dictator I know. Jasper, blimey! Michael, my partner in science and real-estate. Björn & Martijn, for good parties, both dancing and dinner. Jelle, my conference trip pal, the most positive guy I know and with unbeatable culinary taste. Sabine, voor de gratis taallessen en tafelvoetbaloverwinningen. Bas, for being a top lad and culture vulture. Jeroen and Anne, for being absolute toppers. And to Mark, the flying Dutchman. Thanks also to Damian, Nadine, Alyt, Sifra, Sanne, Rena, Franz, Andreas, Nadine, Hao, Anna, Ivar, Annemarie, Carmina, Verena, Sara-Jane, Sarah, Alma, Nina, Nhu. And, definitely not to forget the overseas whoseballers – Jakob, Kim and Erik – see you at the next conference, if not before.

The champions of the mighty ASV Arsenal have been integral to my physical well-being (as well as infirmities) since coming to Amsterdam. What a team, what a unit, what a story! Here’s to the new season as ‘zondag I’ – up the Arsenal!

Thanks also to my new friends – Floor & Jeroen plus Luna & Mats, Ronald & Roos, Michel & Emma, Maaike & Luuk, and Tessa & Daniel (wat burgerlijk allemaal met zijn tweetjes!). You guys have helped me feel welcome here from day one. Vet leuk van jullie!

Lots of love to the Aidan’s lads (and ladies) – “I can give Home Ec. another shot.” And cheers to the Hale Boys (and girls). Team FLANGE – onwards we ride!
Saving some of the best 'til last (no offence to those before, I'm just biased). Dad, I know you'd be proud of this achievement. Although I think you'd be happier that one of us moved to Amsterdam where we could enjoy some beers together by the canals. I miss you very much. Mum, you are the most incredible woman I know. I love you very much. And even though I'm not sure how much you know about what I've been studying these years (much of it is lost on me too), you have been such a big part of it. Snort! James, I'm so lucky that you and Bella (and bump) came to experience Amsterdam for those summer months. They were definitely some of the best of my life! Plenty more where that came from now that little Rose is here. Will, I'm so chuffed you and Lizzie managed your trip during these last years. More exciting times ahead! Although next time you come to 'Dam let's not both injure our hands. Jono, I hope you enjoy your learning adventure as much as I have. Keep following what you enjoy and you'll nail it. Lose the fake tan though. Keep the guns. All my love to Granny and Nanny. Love also to my schoonfamilie (does that literally mean clean family?). Thank you for all the advice and good times you've shared with Yara and me. Looking forward to many more with baby on the way. I'm very lucky to have you all.

Yara. In the immortal words of Shania Twain, “Looks like we made it...” Although thinking back five years, I don't think we could have guessed what has since come to pass. Meeting under the umbrella. The pingwings. Everything since. And now a new little life. Every day I count myself lucky to have met you. Every day I learn from you. You enrich and challenge me with your approach to life and love. Your honesty and lucidity is like no one I've met before. Your beauty in all aspects of life constantly amazes me. You bring me so much joy. Thank you for everything throughout these years, including working through the injuries and errors. I've learnt more from our time together than from any book. My love for you only grows, maar Toni blijft altijd klein. I cannot wait for the next steps – bring it on.
Visuals in news media play a vital role in framing citizens’ political preferences. Yet, compared to the written word, visual images are an undervalued part of political communication. Using framing theory, this thesis redresses the balance by studying the combined, or multimodal, effects of visual and verbal media. Three experimental studies using international affairs news – a ready source of compelling visuals – address the following questions: (a) what is the individual and combined contribution of visuals and text to framing effects? (b) what information processing mechanisms underpin multimodal framing effects? And, (c) how do multimodal framing effects differ in different media formats (i.e., news articles and videos)? Findings show that visuals evoke an emotional reaction that drives political behaviour. However, visual cues can be overpowered by systematically processed verbal content, especially when presented in news articles compared to videos. By placing visuals and text on an equal footing this thesis takes a step towards a fully multimodal news framing theory.