

Cognition and Emotion



ISSN: 0269-9931 (Print) 1464-0600 (Online) Journal homepage: http://www.tandfonline.com/loi/pcem20

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To cite this article: Madelijn Strick & Jantine van Soolingen (2017): Against the odds: human values arising in unfavourable circumstances elicit the feeling of being moved, Cognition and Emotion, DOI: 10.1080/02699931.2017.1395729

To link to this article: http://dx.doi.org/10.1080/02699931.2017.1395729

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Against the odds: human values arising in unfavourable circumstances elicit the feeling of being moved

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ABSTRACT

People sometimes say they are "moved" or "touched" by something. Although the experience is familiar to most, systematic research on being moved has just begun. The current research aims to advance our understanding of the prototypical elicitors of being moved. We tested the hypothesis that being moved is elicited by core values (i.e. values that are particularly central to being human) that manifest themselves in circumstances that are unfavourable to their emergence. In three experiments, two with text stimuli and one with pictorial stimuli, we found compelling evidence that the same core value (e.g. love, willpower, beauty) is perceived as more moving when it emerges in unfavourable than in favourable circumstances. The effect was found in both males and females, although stronger in the latter group, and across all investigated core values, although love was generally more moving than other core values. The theoretical and practical significance of these findings is discussed.

ARTICLE HISTORY

Received 16 June 2017 Revised 16 October 2017 Accepted 17 October 2017

KEYWORDS

Being moved; being touched; core values; contrast effect; excitation transfer

People sometimes say they are "moved" by something. Examples of events that may evoke such feelings are the reunion of two long-separated family members, the longed-for victory of a courageous freedom fighter, or the sound of a beautiful song amid a dreadful and devastating war. At such moments, we may feel overwhelmed by emotion. Being moved is part of our daily experience. It is central to many cultural expressions like film and literature, but also to persuasive messages such as pol-Nonetheless. speeches and advertising. systematic research on being moved has only just begun. Indeed, The Oxford Companion to Emotion and the Affective Sciences published in 2009 notes that the emotion of being moved is still "ill-understood" (Tan, 2009).

The current research aims to advance our understanding of being moved. Specifically, we tested the hypothesis that being moved is elicited by core values that emerge from circumstances that are unfavourable to their emergence. This idea has been

implied in several recent papers, most explicitly by Cova and Deonna (2014). Until now, however, it still awaited empirical testing. By doing this research, we hope to contribute to a better understanding of the emotion of being moved, and to advance our knowledge and skills of producing written and pictorial stimuli that reliably elicit the feeling of being moved.

Although being moved has been under-studied, recent research has made enormous progress in mapping its emotional and physiological ingredients. A sample of no less than 901 participants who rated the subjective experience of being moved characterised it as "wide rather than narrow, elevating rather than depressing, fine rather than coarse, warm rather than cold, open rather than closed, soft rather than hard, round rather than angular, feminine rather than masculine, and pleasant rather than unpleasant" (Menninghaus, Wagner, Hanich, & Wassiliwizky, 2015, Study 3). Discriminatory analyses further showed that moving can be equated with touching or deeply moving, but differs from exciting (which is higher in

arousal level), *elevating* (which is more positive), and *shattering* (which is more negative, Menninghaus et al., 2015). When people are intensely moved, they may experience goose bumps, moist eyes, a lump in their throat, and/or a warm feeling in the chest (Benedek & Kaernbach, 2011; Scherer & Zentner, 2001; Schubert, Zickfeld, Seibt, & Fiske, in press; Strick, De Bruin, De Ruiter, & Jonkers, 2015; Wassiliwizky, Jacobsen, Heinrich, Schneiderbauer, & Menninghaus, 2017; Wassiliwizky, Wagner, & Jacobsen, 2015).

Being moved is categorised as a mixed emotion as it typically involves feelings of sadness as well as joy (Cova & Deonna, 2014; Menninghaus et al., 2015; Schubert et al., in press). Menninghaus et al. (2015) distinguished between being sadly moved and being joyfully moved, referring to instances of being moved in which feelings of sadness and joy dominate, respectively. Collapsed across all variants of being moved, however, they found that being moved had an overall slightly positive valence. Likewise, Cova and Deonna found that after remembering and writing down an occasion in which they were moved, participants categorised the occasion far more often as positive than as negative (see also Hanich, Wagner, Shah, Jacobsen, & Menninghaus, 2014; Schubert et al., in press). Although we note that people can be sadly moved, the current study focuses on being joyfully moved.

Researchers agree that being moved is typically caused by events and actions that are in some way profound and that relate to deeply-engrained values ideals. Some difference of opinion exists, however, on the type of values that are involved. Schubert et al. (in press) proposed that being moved is typically caused by an intensification of communal sharing relations, which are relations in which people have a sense of common identity and distribute resources according to need, for example in friendship or family bonds (Fiske, 1992, 2004). Menninghaus et al. (2015) pointed at values of attachment, empathy, and bonding. They argued that the prototypical elicitors of being moved activate prosocial norms and self-ideals. Cova and Deonna (2014) casted a wider net of values by proposing that the typical objects of being moved are positive core values, which are "transcendent" values that are particularly important and central to being human, and that cannot be traded with ordinary values like money or hedonic pleasure. Core values encompass bonding and attachment-related values, but also values that are not primarily related to bonding such as courage, health, and life itself. Thus

an open question in the literature is whether being moved is specifically related to bonding and attachment, or more generally related to core values. The present research compared a value primarily related to social bonding (love) with values not primarily related to social bonding (e.g. willpower and beauty), and therefore yielded relevant insights for this discussion. We define love as "kindness – friendly or nurturant acts towards other beings"; willpower as "perseverance – achieving things despite difficulty"; and beauty as "aesthetic pleasure provided by an object, scene or person".

The most important aim of this research, however, was to test the prediction that stronger expressions of core values predict stronger feelings of being moved. In line with Cova and Deonna (2014), we hypothesise that the feeling of being moved is mediated by the strength with which a core value is manifested. We tested this by comparing situations in which core values are manifested in circumstances that are unfavourable to their emergence to situations in which core values are manifested in circumstances that are *favourable* to their emergence. We presume that core values are perceived as particularly strong when they are affirmed in unfavourable circumstances. This may be understood under the general principle of a contrast effect, that is, the finding that the subjective value of a stimulus is increased or decreased depending on the value of the context. This contrast effect can be applied to the perception of core values: To the extent that core values triumph in adverse and difficult circumstances, they appear stronger and more salient. For example, we expect the value of love to appear stronger when conducted in times of war (unfavourable circumstances) than when conducted in times of peace (favourable circumstances). Likewise, we expect the value of willpower to appear stronger when accomplished by a person with a debilitating disease (unfavourable circumstances) than by a person who is fit and healthy (favourable circumstances). Moreover, we contend that because unfavourable circumstance make a core value stand out more, they increase the feeling of being moved.

Previous research has alluded to the possibility that values may be more moving when they stand in sharp contrast with the context. For example, Schubert et al. (in press) noted that a sudden intensification of communal sharing relationships may be more moving than the gradual increase of communal sharing relationships. Cova and Deonna (2014) postulated

that being moved is caused by core values *standing out* from the context. They mentioned unfavourable circumstances as one of three conditions making core values stand out. The two other conditions were dedicated celebrations of the core value (e.g. a wedding to celebrate the value of love) and situations that are unprecedented or extraordinary (e.g. the birth of a child, which is an extreme and extraordinary event for the people involved). To date, however, the idea that values are particularly moving when they stand in sharp contrast with the circumstances awaited empirical testing.

We present three studies testing the idea, two with text stimuli, and one with pictorial stimuli. The first two studies investigated love, willpower, and beauty. Study 3 used additional core values like determination and reverence. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study.

Study 1

Method

Participants and design

The study used a 2(circumstance: unfavourable vs. favourable) \times 3(value: love vs. willpower vs. beauty) within-participants design. The dependent variables were being moved and the valence of that feeling (positive, negative, or not moved).

Because there was no earlier study to base our estimated effect size and sample size on, we used the typical effect size in social psychology research (r = .21; Richard, Bond, & Stokes-Zoota, 2003) and an estimated correlation of 0.7 between the levels of the main within-participants variable. Based on these estimations, a sample size of 28 participants was needed to detect the hypothesised main effect of circumstance with 80% power. Thirty-two university students participated, but 5 participants had to be excluded from the analyses because their responses

Table 1. Value rating of text stimuli of the unfavourable condition in experiment 1 and 2.

		Rating		
Text Stimuli	Love	Willpower	Beauty	
Love	6.36 _a (1.71)	3.44 _b (2.29)	3.33 _b (2.49)	
Willpower	3.91 _c (2.05)	6.54 _a (1.43)	3.37 _b (2.30)	
Beauty	3.11 _d (2.18)	2.88 _d (2.18)	5.53 _e (1.56)	

Note: Standard deviations appear in parentheses. Ratings ranged from 1 (*Not at all*) to 9 (*Very much*). Means that do not share subscripts differ within rows and columns at p < .05.

to the valence questions were not recorded due to a programming error. The final sample thus consisted of 27 university students (67% females) with an average age of 21.44 years (SD = 3.37). They participated in exchange for a monetary compensation or partial course credit.

Materials

Text stimuli

Sixty text stimuli for the unfavourable condition were created (see Appendix for all text stimuli). They described the emergence of a core value against unfavourable circumstances. Twenty stimuli were related to the value of love, 20 to willpower, and 20 to beauty. The stimuli consisted of two sentences. The first sentence described a circumstance that was unfavourable to the emergence of a value. Examples of first sentences are the description of two estranged friends (unfavourable to the emergence of love), a woman with a debilitating disease (unfavourable to the emergence of willpower), and a man stationed in a dreadful war (unfavourable to the emergence of beauty). The second sentence always expressed a manifestation of the value to which the circumstance had been unfavourable. Thus, for the examples just mentioned, the second sentences described, for instance, an affectionate reunion of the friends (love), a great professional achievement of the woman (willpower), and the sound of a beautiful piece of music (beauty), respectively.

We validated the classification of the stimuli by asking forty Amazon M-Turk workers to indicate how much they associated each text stimulus with love, willpower, and beauty on scales ranging from 1 (*Not at all*) to 9 (*Very much*). We defined love as "kindness; friendly or nurturant acts towards other beings", willpower as "perseverance; achieving things despite difficulty", and beauty as "aesthetic pleasure provided by an object, scene or person". The results (summarised in Table 1) showed that love texts were primarily associated with love, willpower texts with willpower, and beauty texts with beauty, confirming the classification of the stimuli.

For each of the 60 text stimuli with unfavourable circumstances, a counterpart was created in which the circumstance was favourable to the emergence of the respective value. This was done by changing only the first sentence (i.e. the circumstance). Thus, for the examples just mentioned, the counterpart first sentences described two close friends (favourable

to the emergence of love), a fit and healthy woman (favourable to the emergence of willpower), and a man working in a music archive (favourable to the emergence of beauty), respectively. Our main goal was to assess whether the second sentences (values) would be rated as more moving when presented after unfavourable first sentences (unfavourable circumstances) than when presented after unfavourable first sentences (favourable circumstances).

Procedure

Participants worked in individual cubicles. All stimuli and instructions were provided to them via a pc. Participants were informed that the study was about their feelings while visualising text. They were asked to visualise the events described in the texts as lively as possible. They completed two blocks of ratings. The purpose of the first block was to measure participants' emotional response to the favourable and unfavourable circumstances themselves, and the purpose of second block was to measure participants' emotional response to the values emerging from favourable and unfavourable circumstances. This allowed us to distinguish between the emotional response to the circumstances per se and the combination of circumstances and values. We expected the unfavourable circumstances per se to be rated as moving in a mostly negative way. In contrast, we expected the emergence of core values in unfavourable circumstances to be rated as moving in a mostly positive way.

Example trials of Block 1 and Block 2 are depicted in Figure 1. In the first block, only the first sentences of the text stimuli were presented, one by one, in random order. Participants indicated for each sentence how much it moved them on a scale from 0 (not moving at all) to 9 (very moving) [in the original Dutch language 0 (helemaal niet ontroerend) to 9 (zeer ontroerend)], and subsequently, whether this feeling was positive or negative by pressing one of three options 1 (positive); 2 (negative); 3 (did not move me at all) [in the original Dutch language 1 (positief); 2 (negatief); 3 (ontroerde me helemaal niet)].

In the second block, combinations of first and second sentences were presented. Participants now indicated for each *second* sentence how much it moved them, and the valence of that feeling, using the same scales as in the first block. To secure attention to the favourable or unfavourable context, the stimuli were presented step-wise. That is, the first sentence appeared alone and stayed on screen for 5 s

(pretesting had indicated that all first sentences could be processed within 5 s), after which the second sentence was presented below it, and stayed on screen until a response was given.

Per block, each participant rated sixty different stimuli. All stimuli were presented twice, for a total of 120 ratings per block. Repeated stimulus presentations showed exactly the same stimulus. Thus, for each value sentence, participants saw only the favourable or the unfavourable context. Which version of the circumstances was shown to the participant (unfavourable or favourable) was counterbalanced between participants using two counterbalance conditions to which participants were randomly assigned (i.e. in one counterbalance condition (n = 13), texts through 10 had unfavourable circumstances, texts 11–20 had favourable circumstances, texts 21–30 had unfavourable circumstances, etc., and vice versa for the other counterbalance condition (n = 14)). Texts with favourable and unfavourable circumstances were presented in random order.

After rating the text stimuli, participants were paid and thanked for their participation.

Results

Analytical approach

Differences between conditions on the level of being moved were analysed using a linear mixed model in SPSS 24 to accommodate the multilevel nature of the dataset. For ease of presentation, we present non-multilevel analyses for ancillary measures (e.g. correlations between levels of the repeated measures variables).

Circumstances per se

Circumstance (favourable vs. unfavourable) and value (love vs. willpower vs. beauty) were entered as fixed factors and being moved as the dependent variable in the linear mixed model. Intercepts were set to vary across participants. Furthermore, stimulus number was entered as random factor to control for non-independence between residuals of responses to the same stimuli. We found a main effect of circumstance, F(1, 1588) = 165.46, p < .001, B = 1.11, 95% CI [0.77, 1.44] indicating that unfavourable circumstances were rated as more moving (M = 4.50, 95% CI [3.90, 5.10]) than favourable circumstances (M = 3.22, 95% CI [2.63, 3.82]). As expected, the emotional reaction to the unfavourable circumstances were mostly negative. Participants classified 15.5% of their

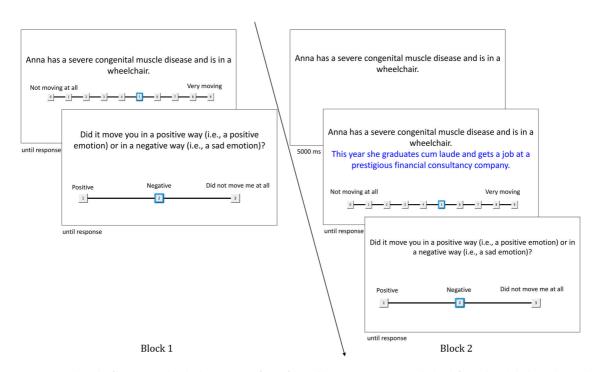


Figure 1. Example trials of being moved and valence ratings of an unfavourable-circumstance text in Block 1 (left panel) and Block 2 (right panel).

being moved reactions as positive; 64.0% as negative; and 20.5% as not being moved.

We also found a main effect of value, F(2, 1588) = 21.78, p < .001, indicating that texts about love were on average rated as more moving (M = 4.27, 95% CI [3.66, 4.87]) than texts about beauty (M = 3.85, 95% CI [3.25, 4.46]), p = .001, and texts about willpower (M = 3.47, 95% CI [2.86, 4.07]), p < .001. Texts about beauty were on average rated as more moving than texts about willpower, p = .001. Finally, we found an interaction between circumstance and value, F(2, 1588) = 11.86, p < .001. The main effect of circumstance was significant for all values ($Fs \ge 21.57$, ps

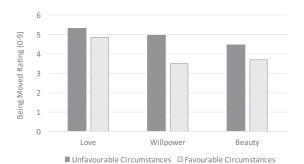


Figure 2. Ratings of being moved by manifestations of love, willpower and beauty depending on their emergence from unfavourable or favourable circumstances, Study 1.

< .001), but the difference in being moved by the unfavourable and favourable circumstances was largest for willpower (M = 1.93, 95% CI [1.60, 2.26]), followed by beauty (M = 1.11, 95% CI [0.76, 1.46]), and love (M = 0.79, 95% CI [0.45, 1.12]).

In summary, our expectation that unfavourable circumstances per se would be rated as negatively moving was confirmed.

Values emerging from circumstances

To test our main hypothesis that core values are more moving when they emerge under unfavourable than favourable circumstances, we subjected the data of the second block to a linear mixed model. The fixed and random factors were the same as in the analysis of the circumstances per se. The results are displayed in Figure 2. Most importantly, we found a main effect of circumstance, F(1, 1588) = 113.08, p < .001, B = 0.76, 95% CI [0.47, 1.04], indicating that values were indeed rated as more moving when emerging from unfavourable (M = 4.92, 95% CI [4.21, 5.62]) than favourable (M = 4.02, 95% CI [3.32, 4.73]) circumstances. The correlation between being moved in the favourable and unfavourable condition was r(25) = .918, p < .001. As expected, the emotional reaction to the values emerging from unfavourable circumstances were mostly positive. Participants classified 78.8% of their being

moved reactions as positive; 9.9% as negative; and 11.3% as not being moved.

We also found a main effect of value, F(2, 1588) = 54.70, p < .001, indicating that texts about love were on average rated as more moving (M = 5.09, 95% CI [4.37, 5.80]) than texts about willpower (M = 4.24, 95% CI [3.53, 4.95]), p = .001, and texts about beauty (M = 4.09, 95% CI [3.38, 4.80]), p < .001. Text about willpower and beauty were rated as equally moving, p = .152. Finally, we found an interaction-effect between circumstance and value, F(2, 1588) = 11.80, p < .001. The main effect of circumstance was significant for all values ($Fs \ge 14.12$, ps < .001), but the difference in being moved in the unfavourable and favourable condition was largest for willpower (M = 1.44, 95% CI [1.16, 1.73]), followed by beauty (M = 0.76, 95% CI [0.45, 1.06]), and love (M = 0.47, 95% CI [0.23, 0.72]).

Thus, the results confirmed that participants were more moved by values when they emerged from unfavourable circumstances than from favourable circumstances. This effect was found for all three values (i.e. love, willpower, and beauty), but strongest for willpower. Independent of the circumstances manipulation, however, texts about love were rated as more moving than texts about willpower and beauty. As expected, while the unfavourable circumstances themselves elicited a mostly negative emotion, the values emerging from them elicited a mostly positive emotion. This converges with earlier findings that being moved is a mixed-emotion state (see also Kuehnast, Wagner, Wassiliwizky, Jacobsen, & Menninghaus, 2014; Wassiliwizky, Koelsch, Wagner, Jacobsen, & Menninghaus, 2017).

Being moved as a positive emotion

Although being moved consists of mixed emotions, it is typically experienced as a pleasant state (Cova & Deonna, 2014; Hanich et al., 2014; Schubert et al., in press). In this research, we focus on the pleasant state of being moved (i.e. being "joyfully moved", Menninghaus et al., 2015). Therefore, one could argue that the cases in which participants categorised their feeling of being moved as negative were not of primary interest. Another way to analyse the data, then, is to analyse only the instances where participants indicated being moved in a positive way, or being not moved at all. For this analysis, we excluded the 21.7% of the being moved data where participants indicated that the text gave them a negative feeling (8.4% related to love, 6.2% related to willpower, and 7.2% related to beauty). Of the 21.7%, 18.2% related

to circumstances per se and 3.5% related to values emerging from them.

An important advantage of controlling for valence is that we can use the ratings of the circumstances block as a control condition. Our hypothesis is that the feeling of being positively moved is elicited by core values emerging from unfavourable circumstances. Therefore, we should expect core values emerging from unfavourable circumstances to elicit the feeling of being positive moved, but not the unfavourable circumstances themselves, as they do not confirm core values.

We tested this using the same mixed model analysis as above to analyse the positive instances of being moved, but we added block (circumstances block vs. values block) as repeated measures variable. As expected, we found a main effect of block, F(1, 3967.14) = 721.91, p < .001. The values block (M = 4.42, 95% CI [3.76, 5.09]) on average elicited higher ratings of being positively moved than the circumstances block (M = 3.24, 95% CI [3.76, 5.09]). Furthermore, there was a significant interaction effect between circumstance and block, F(1, 3966.70) = 49.01, p < .001. Separate analyses of each block indicated that, in the circumstances block, unfavourable circumstances were not rated as more positively moving than favourable circumstances, F(1, 1078.42) = 1.43, p = .231. In contrast, in the values block, values were rated as more positively moving when they emerged from unfavourable circumstances (M = 4.86, 95% CI [4.14, 5.58]) than when they emerged from favourable circumstances (M = 3.98, 95% CI [3.26, 4.70]), F(1, 1502.37) = 105.52, p < .001, B = 0.76, 95% CI [0.47, 1.05]. Thus, using the ratings of the circumstances block as control condition, these results indicate that the positive feeling of being moved is elicited by core values affirmed in unfavourable circumstances, but not by the unfavourable circumstances themselves (i.e. without value affirmation).

To summarise, Study 1 provided evidence that the feeling of being moved is elicited by the experience of a core value that emerges from a context that is unfavourable to its emergence. When values emerged from unfavourable circumstances they were experienced as more moving than when they emerged from favourable circumstances.

Study 2

Study 2 was run after Study 3, but we report it as Study 2 because it was a shortened version of Study 1 and

was designed to replicate its main findings. The sample size was larger and it included a larger percentage of males than Study 1, allowing us to evaluate the robustness of the main findings and additionally test for a potential interaction with gender.

Method

Participants and design

The sample consisted of 85 participants (mostly students) recruited on the university campus (50 females) with an average age of 21.81 years (SD = 2.86). They participated in exchange for a monetary compensation or partial course credit. The study used a 2(circumstance: unfavourable vs. favourable) \times 2(value: love vs. willpower) within-participants design. The dependent variable was being moved.

Materials and procedure

The materials and procedure were the same as in Study 1, except that the first block (circumstances per se) and the valence ratings were omitted, the stimuli relating to the value of beauty were omitted, the number of rated text stimuli per participant was reduced to 20 (10 about love, 10 about willpower), and the stimuli were only rated once. Appendix indicates which stimuli were selected and not selected for Study 2.

Results

Values emerging from circumstances

Circumstance and value were entered as fixed factors and being moved as the dependent variable in the linear mixed model. Intercepts were set to vary across participants. Stimulus number was no longer entered as random factor because in this study the stimuli were not repeated. The results are displayed in Figure 3. Most importantly, we replicated the main effect of circumstance, F(1, 1613.00) = 348.35, p < .001, B = 2.10, 95% CI [1.84, 2.36], indicating that values emerging from unfavourable circumstances were rated as more moving (M = 5.37, 95% CI [5.06, 5.69]), than values emerging from favourable circumstances (M = 3.64, 95% CI [3.32, 3.95]). The correlation between being moved in the unfavourable and favourable condition was r(83) = .775, p < .001.

We also found a main effect of value, F(1, 1613.00) = 52.62, p < .001, indicating that texts about love were on average rated as more moving (M = 4.84, 95% CI [4.53, 5.15]) than texts about willpower (M = 4.17, 95% CI [3.86, 4.48]). Finally, we found an interaction-

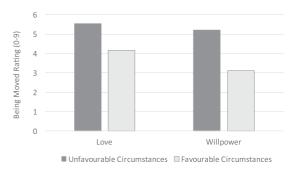


Figure 3. Ratings of being moved by manifestations of love and will-power depending on their emergence from unfavourable or favourable circumstances, Study 2.

effect between circumstance and value, F(1, 1613.00) = 15.14, p < .001. The main effect of circumstance was significant for both values ($Fs \ge 113.71$, ps < .001), but the difference in being moved between the unfavourable and favourable condition was larger for willpower (M = 2.10, 95% CI [1.84, 2.36]) than for love (M = 1.37, 95% CI [1.12, 1.63]) (Figure 3).

Gender

Circumstance and gender were entered as fixed factors and being moved as the dependent variable in the linear mixed model. Intercepts were set to vary across participants. Besides the main effect of circumstance, there was a main effect of gender, F(1,82.99) = 5.30, p = .024, indicating that females on average rated the stimuli as more moving (M = 4.79,95% CI [4.41, 5.17]) than males did (M = 4.10, 95% CI [3.65, 4.56]). There was also an interaction between circumstance and gender, F(1, 1614.00) = 9.94, p = .002. The difference in being moved between unfavourable and favourable circumstance was larger for females (M = 1.99, 95% CI [1.74, 2.23]) than for males (M =1.38, 95% CI [1.10, 1.66]). However, the effect of circumstances was significant for both genders, $Fs \ge$ 92.99, ps < .001.

Thus, Study 2 replicated the main results of Study 1, providing more evidence that values elicit a stronger feeling of being moved when they emerge from unfavourable circumstances than when they emerge from favourable circumstances. The study showed that this main conclusion holds for males as well as females. However, the effect of circumstances was stronger for females than males, and females overall gave higher ratings of being moved.



In Study 3, we switched from text stimuli to pictorial stimuli to find convergent evidence for our main hypothesis across various stimulus types.

Study 3

Method

Participants and design

Based on the effect size of Study 1 (which was the smallest of the first two studies), only N = 8 would be needed to detect an effect with 80% power (Faul, Erdfelder, Buchner, & Lang, 2009). However, we did not adhere to this extremely small sample size. We were not sure to find the same effect sizes as in Study 1 considering the difference in method in Study 3 (the switch from text to pictorial stimuli and the considerably smaller number of trials per participant). Therefore, we aimed for a sample size of at least 30 participants. The final sample consisted of 32 participants recruited at the university campus (mostly university students, 25 females) with an average age of 21.22 years (SD = 2.49). They participated in exchange for a monetary compensation or partial course credit. The study had a within-participants design with circumstance (unfavourable vs. favourable) as withinparticipants variable and being moved as the dependent variable.

Materials

Photos

Eight photos that were freely available on the Internet were selected that showed a core value being expressed under unfavourable circumstances. For example, one photo showed a sergeant nourishing a kitten during the height of the Korean war – expressing kindness amid violence (all photos can be obtained through the first author). The eight photos related to different core values such as kindness, determination, and reverence. Captions were added to explain what was depicted in the photo.² For each photo, a version with a favourable circumstance was either selected from the Internet or created by modifying the photo or the caption. The counterpart of the photo of the sergeant showed a veterinarian nourishing a kitten in a centre for animal welfare. Except for the circumstance, the differences between the two versions of the photos were kept to a minimum (see Tokaji, 2003, for a similar manipulation).

Procedure

Participants were informed that the study was about the feelings they had while viewing photos. Then, they completed two blocks of ratings, first of being moved, and then of being touched. Two measures were used to make the results more reliable, and because they measure the same emotion (Menninghaus et al., 2015). In the first block, the photos were presented to them one by one in random order, and for each photo they were asked to indicate how much it moved them on a scale from 1 (not moving at all) to 7 (very moving) [in the original Dutch language 1 (helemaal niet ontroerend) to 7 (heel erg ontroerend)]. In the second block, the same photos were again presented in random order, and for each photo they were asked to indicate how much it touched them on a scale from 1 (does not touch me at all) to 7 (touches me very much) [in the original Dutch language 1 (raakt me helemaal niet) to 7 (raakt me heel erg)]. The two ratings were averaged to form a reliable measure of being moved (Cronbach's alpha = .904).

Per block, each participant rated eight different photos, four with an unfavourable circumstance and four with a favourable circumstance. Each participant rated only one version of each photo. Which version of the photo was shown to the participant (the unfavourable or the favourable version) was counterbalanced using two counterbalance conditions, to which participants were randomly assigned (i.e. in one condition (n = 13), photos 1–4 had unfavourable circumstances, and photos 5-8 had favourable circumstances, and this was reversed in the other condition (n = 19)).

Results

The results were again analysed using a linear mixed model. Circumstance was entered as the fixed factor and being moved as the dependent variable. The intercept was set to vary across participants. In line with the hypothesis, the results showed that the photos portraying a value being expressed in unfavourable circumstances (M = 5.11, 95% CI [4.77, 5.44]) were rated as significantly more moving that the photos portraying a value being expressed in favourable circumstances (M = 3.60, 95% CI [3.26, 3.93]), F(1, 224.69) = 63.21, p < .001, B = 1.51, 95% CI [1.14, 1.89]. The correlation between being moved in the unfavourable and favourable condition was r(30)= .555, p = .001. In addition, we analysed whether the

Table 2. Means, F-values, and effect sized of being moved by photos portraying a core value being expressed in unfavourable or favourable circumstances.

	M _{Unfavourable} (95% CI)	M _{Favourable} (95% CI)	F(1, 30)	Cohen's d
Tip	5.63 (5.11, 6.16)	4.58 (3.94, 5.21)	6.81*	0.95
Runners	5.18 (4.56, 5.81)	4.12 (3.35, 4.88)	4.88*	0.81
Saved	5.89 (5.36, 6.43)	4.85 (4.21, 5.49)	6.62*	0.94
Piano	3.45 (2.73, 4.16)	1.65 (0.79, 2.52)	10.62**	1.19
Salute	5.69 (5.02, 6.36)	3.18 (2.63, 3.74)	34.79***	2.15
Veteran	6.19 (5.52, 6.87)	4.71 (4.15, 5.27)	11.84**	1.26
Kitten	4.96 (4.04, 5.88)	3.40 (2.63, 4.16)	7.15*	0.97
Crowd Surf	4.15 (3.31, 5.00)	2.66 (1.96, 3.36)	7.71**	1.01

p < .05, **p < .01, ***p < .001.

effect of circumstances held for each pair of photos. To this end, we ran a MANOVA with the counterbalance condition as fixed factor and the being moved ratings of the eight photos as dependent variables. As shown in Table 2, the effect of circumstances was significant for each pair of photos.

Discussion

These three studies provided evidence that core values are more moving when they emerge from unfavourable circumstances than when they emerge from favourable circumstances. This effect was found for all core values tested - e.g. love, willpower, and beauty - and across text and pictorial stimuli. The effect was reliable across both genders, although it was stronger for females, who also reported stronger feelings of being moved in general. Our findings contribute to previous research by illustrating a typical scenario that reliably elicits the feeling of being moved, namely, an action or event that represents a core value emerging in unfavourable circumstances. It helps us understand the emotion better by showing that people are more moved by a core value when it triumphs in adversity, and as such, clearly stands out from the context.

Independent of the contrast manipulation, our studies indicated that love elicited stronger feelings of being moved than willpower or beauty. Although speculative, this finding may also be connected to the hypothesis that the feeling of being moved depends on core value strength. It could be argued that love (including love-related values such as affiliation, belongingness, and attachment) is the most powerful human value. Indeed, love is considered a particularly deeply rooted motive, and is prominently featured in all theories on human motivation and wellbeing (e.g. Baumeister & Leary, 1995; Deci & Ryan, 2000; Maslow, 1954; McClelland, 1985). Perhaps

because love is a particularly strong value, stimuli related to love are especially effective at eliciting the feeling of being moved. This also corresponds with recent findings and theorising suggesting that love and love-related values play a prominent role in being moved (e.g. Menninghaus et al., 2015; Schubert et al., in press). It should be noted, however, that we used a definition and operationalisation of love that implies selflessness ("kindness - friendly or nurturant acts towards other beings"). The existing literature defines love in broader terms, including romantic love and sexual intimacy (e.g. Bartels & Zeki, 2000). The selflessness implied in our definition may be crucial for eliciting the state of being moved, and our results may therefore not generalise to romantic love and sexual intimacy.

Although love on average elicited a stronger feeling of being moved than willpower or beauty, the impact of the contrast manipulation was stronger for willpower than for love. Hence, researchers interested in using the contrast manipulation in their future studies may be advised to use the willpower stimuli instead of the love stimuli. Note, however, that the large effect size for the willpower stimuli was likely caused by the control stimuli eliciting a relatively low feeling of being moved, rather than the experimental stimuli eliciting a relatively strong feeling of being moved. Obviously, lower ratings in the control condition are associated with larger differences between the control and experimental condition, and hence, to larger effect sizes.

According to our theorising, the feeling of being moved depends on the degree to which a core value is manifested. In this study, we used a contrast effect to manipulate core value strength. We presumed that core values are perceived as particularly strong when they are affirmed in unfavourable circumstances, and in turn, elicit a stronger feeling of being moved. It is important to note, however, that

we do not presume that an unfavourable context is a necessary condition for being moved. Unfavourable contexts increase the powerful perception of a core value, but so do other conditions. For example, core values are also powerfully perceived when they are particularly celebrated, or when special attention is dedicated to them (e.g. in weddings, where the core value of love is specifically celebrated, cf. Cova & Deonna, 2014). We predict that other conditions increasing the powerful perception of a core value increase feelings of being moved to the same extent.

We should also note that based on these studies, it is still possible that an alternative mechanism explains the observed effect of unfavourable circumstances on being moved. One candidate alternative explanation is excitation transfer (Bryant & Miron, 2003; Zillmann, 1983), which refers to the observation that arousal elicited by one state can be transferred to the next state, thereby amplifying the second state, even if the valences of the two states are different. It is conceivable that unfavourable circumstances are more arousing than favourable circumstances, and this arousal amplifies the feeling of being moved. We cannot rule out such alternative explanations in our study because we did not assess core value strength directly. To draw firmer conclusions about the mediating role of core value strength, future research may test different manipulations of core value strength besides contrast with the circumstances, and directly assess the mediating role of core value strength on experiences of being moved.

Although more research on the underlying mechanism is required, the research showed that the manifestation of core values in unfavourable circumstances has a robust effect on being moved. Besides advancing theory, this finding is helpful for being moved researchers in a practical way. The findings illustrated, remarkably, that a complex state as being moved can be elicited by relatively simple stimuli consisting of only two sentences or a single picture with caption. Previous research often relied on participants recalling instances of being moved in their own lives (Cova & Deonna, 2014; Menninghaus et al., 2015). These memory-based studies are valuable because they yield potent and ecologically valid occasions of being moved, but they have the disadvantage of low experimental control. That is, memories differing in the extent to which they are moving may also differ in multiple other aspects which the researcher cannot measure or

control. Other studies used stimuli that are difficult to construct or to alter experimentally (e.g. moving YouTube videos, Schubert et al., in press). Based on the current research, it is easy to construct controlled stimuli that reliably elicit varying levels of being moved, or use the stimuli constructed here.

We also note that the ratings of being moved were not extremely high (Study 1 and 2: 4.92 and 5.37 on a scale from 0 to 9, respectively; Study 3: 5.11 on a scale from 1 to 7). Hence, one potential disadvantage of the developed stimuli is that they elicit only subtle experiences of being moved. This was not a large problem for this research, as it was mostly concerned with the difference between conditions rather than the absolute scores of being moved. However, it may be a problem for future studies exploring physiological responses (goose bumps, a lump in the throat, tears) which typically relate to intense feelings of being moved. It is possible that more potent stimuli such as videos are required to observe these physiological responses. The present research may be helpful for constructing a moving video, though. Likely, a storyline in which a core value emerges in unfavourable circumstances is also effective in video.

Another interesting avenue for further research is to examine the behavioural consequences of being moved. It has been argued that the exemplification of a core value may inspire individuals to pursue that value themselves. Hence, being moved by someone else's courage may inspire being courageous yourself (Cova & Deonna, 2014). However, other researchers pointed out that being moved, being a pro-social emotion, may stimulate a broader range of altruistic behaviours like helping, consolidating, and being generous (e.g. Fukui & Toyoshima, 2014; Stel, Van Baaren, & Vonk, 2008). It is also possible that being moved creates an even more general motivational state, which facilitates the pursuit of any current goal, independent of its content. The stimuli used in this research bear a striking resemblance with underdog stories, or stories where the main character succeeds against all odds. Research has shown that underdog stories have a positive impact on hope and motivation, and may therefore facilitate motivation and goal pursuit in general (e.g. Hong & Lin-Siegler, 2012; Prestin, 2013). Examining the conseguences of being moved on behaviour would be another fruitful direction for future studies.

The current studies showed that people are particularly moved by core values when they manifest themselves in contexts that are unfavourable to their

emergence. Although many questions remain, the findings advanced our understanding of the circumstances that move people.

Notes

- We also again found a main effect of value and an interaction-effect between value and circumstance. As the pattern of results was similar to the pattern of being moved with mixed valence described before, we will not discuss these results further.
- "Combination of pictorial and text stimuli" would be a
 more accurate description, as the pictorial stimuli contained captions. However, for the sake of brevity we
 refer to pictorial stimuli. Note that at present, we
 cannot identify the share of the textual versus the pictorial input on the elicitation of being moved.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix - Text stimuli used in Study 1 and Study 2

Stimuli marked with * were used in Study 1 and Study 2. Stimuli not marked with * were only used in Study 1.

	Lo	ve
	Circumstance	Emerging value
*	U: The members of the motor gang challenge Randy to give the sleeping homeless man a punch. F: Randy works at the Salvation Army and his colleagues urge him to	He bends over and puts a warm blanket over the homeless man.
*	 give the sleeping homeless man a blanket. U: Eduard and his brother have been separated in their youth and haven't seen each other in years. F: Eduard and his brother have been big pals since their youth and see each other weekly. 	This afternoon they accidentally met in a café in Amsterdam and they enthusiastically embraced each other.
	U: Jero grew up in a poor family, but his neighbour was always there for them with food and medicine. F: Jero grew up in a rich family and they always helped their neighbour with food and medicine.	Years later, when the neighbour needed surgery that was so expensive that he would have to sell his business to afford it, Jero paid the hospital bill without being asked.
*	 U: The terrace house of the Poelen family needed big repairs but the family had no friends they could ask for help. F: The terrace house of the Poelen family needed big repairs and the 	One morning people from the entire neighbourhood got ready to make the house liveable again.
	family had many friends they could ask for help. U: I always had heavy rows with my younger brother Jordi and that is why we haven't seen each other since a few years. F: I always have good conversations with my younger brother Jordi and that is why we see each other every day since a few years.	When I got into a fight with a group of guys last week in the cafe. Jordi instantly ran to me to defend me.
	U: I hadn't visited Laurence in years and one day I heard he had died. F: I visited Laurence almost daily and one day I heard he had died.	At the funeral, his wife said: "You were his friend. He often talked about you in conversations."
	U: When Sandra had driven Kasper's car to pieces, she was worried that he would never forgive her. F: When Sandra had driven Kasper's car to pieces, she expected him	When Kasper saw Sandra, he opened his arms and forgave her immediately.
*	 to forgive her. U: As the scar on his arm revealed, Manura had lived through the most horrible things as a child soldier. F: As old pictures revealed, Manura had had a protective youth as child of a loving family. 	When I fell of my bike and had a scratch on my knee, he comforted me until I stopped crying.
	 U: When my teenage grandson Joram came over for a sleep-over, he was distant and avoided any contact with me. F: When my 13-year old grandson Joram came over for a sleep-over, 	When he saw the picture of my diseased husband, he looked at me and took my hand.
	he was cordial, social and trying to communicate with me. U: André and Jack are tough bikers of the type "cold hands, warm heart". F: André and Jack are former psychology students of the "open sandals and woolly socks" type.	When André was in the middle of a divorce ten years ago, Jack tool him to the pub every Thursday, gave him advise, and encouraged him to eat healthy and work out.
*	 U: On his first work day after his burn-out Leon feared he would be fired – his burn-out has made him incapable of working for months and his targets had not been reached for a long while. F: On his first workday after his burn-out Leon felt welcome – his 	In the office, Leon's best colleagues sang a welcome song, after which a cake saying "we missed you" was cut into pieces.
*	burn-out had made him incapable of working for months and his colleagues had been compassionate and supportive. U: Joni's parents were ill-paid and had to look at every penny twice.	Joni always had everything she needed.
	F: Joni's parents were a double-earning couple and had ample money to spend.	
*	U: Francine has written me many, many letters and I could never motivate myself into writing even one letter back. F: Francine has written me many, many letters and I wrote even more back to her.	When I saw her again she embraced me and said that I was her bes friend.
	U: Jerry Risedale from Texas (USA) was convicted for a double murder he had not committed. F: Jerry Risedale from Texas (USA) was acquitted from a double	On the day of the planned execution he thanked the fellow prisoners and guards for the good care and conversations.
	murder he had not committed.U: A homeless man lies in the corner of an alley on a bitter cold winter night – next to him lies his dog.	The homeless man takes off his jacket and puts it over the dog.

	Lo	ve
	Circumstance	Emerging value
summer night – nex		
first time since days.	very hungry and finally has some food for the	The homeless man takes a piece of meat and gives half of it to h dog.
day.	Iready quite satiated and has food, like every	
	Ria that she cannot come to the because the party location is inaccessible to	To contribute to the party Ria makes a big pan of pea soup, which her husband brings to the party.
	Ria that she can come to the neighbourhood arty location is accessible to wheelchair users.	
U: In the bus, I saw a ga	ng member with a piercing, crest and tattoos. ung theology student, freshly cut and in good	When an old man got on the bus, he immediately stood up and gave him his seat.
U: As a 12-year old boy when he was sad.	I often frightened Joris and made fun of him I often made Joris laugh and comforted him	He kept supporting me and spoke up for me whenever the big bowere chasing me.
U: On the day I would t rained, we missed th that we only could g F: On the day I would the sun was shining, were longer than ex	ake Jari to the zoo everything went wrong – it e train, and the zoo was closed. Because of et into the playground that day. take Jari to the zoo everything went great – we got the train, and the zoo's opening times pected. Because of that we could even go to	At the end of the day he thanked me with a big hug and said he ha had a great day.
the playground after Willpower		
	ordinary Dutch man with a wife and two kids. in rank in the army and has already received istinctions	Today he gets a military medal for his heroic actions in Afghanista
U: During his running his fully paralysed soF: During his running	training, father Abe pushes the wheelchair of	This way father runs the marathon three times, together with hi son.
long before the build F: A fire had broken o	It in the apartment building – it would not be ding would collapse. It in the apartment building – it would not fire would be put out.	The fire fighter ran inside the building for the last time.
U: Nguyen was a simpl vegetable garden.	e man and lived from the earnings of his small landowner and lived from the income of his	As a gift for the king he brought a box of tea from his own harve
U: Anna has a severe wheelchair.	congenital muscle disease and is in a	This year she graduates cum laude and gets a job at a prestigio financial consultancy company.
U: Due to the crisis, all shop in the inner cit F: The crisis had had li	vitality and a perfect condition. of Ria's savings had been spent to prevent her y from going bankrupt. ttle influence and Ria had not been forced to	When a costumer asked if she shouldn't close the shop, she sure at certain answered: "No, this is my dream".
U: Janneke had been loverweight, and this F: Janneke had been a	oney on her cosy inner-city shop. bullied as a teenager because of her had made her very insecure about her looks. dmired as a teenager for her figure and this ecure about her looks.	Now she is a successful plus-size model and very happy about h body.
U: Ben (5) had not bee to swim through the F: Ben (5) had not bee looking forward to s	n sleeping well for days because he was afraid deep part of the swimming pool. In sleeping well for days because he was wimming through the deep part of the	When he had to do the swimming contest, he closed his eyes a swam the entire part without looking once.
sell his car and hous	man made good profits last year and Herman	He is an optimist and is working hard at the moment to start a ne company.



Continued.

Love			
Circumstance	Emerging value		
 U: Stefan has leukaemia and is weakened by the chemo the stefan is a normal boy and is strong because of his foot practices. 			
U: Alf had always been the ugly boy of the class and had adr beautiful Lizzy all his life.			
F: Alf had always been the most popular boy in class and ha thought the beautiful Lizzy could well be his girlfriend.			
U: The family Melawi lives in a hut made of cane and gets less than a dollar a day. F: The family Melawi lives in a beautiful condo and gets to			
good salary. U: Due to a muscle disease, the man could only communion his eyes.	afterwards.		
F: Due to a course on writing and presenting, the man hacommunicating and writing skills.			
U: As mediocre-talented street footballer, Addy had played square with his friends during his entire youth. F: As sure soccer champion to be, Addy had played on this with his friends during his cation youth.	soccer player.		
with his friends during his entire youth. U: Mieke is a small girl aged 6 with blond pigtails and she i on the ice.			
F: Mieke is a professional ice skater of 26 years old with a posture.			
 U: According to the doctors there was a big chance that Edd never be able to walk or crawl due to her hereditary dis F: According to the doctors, there was a big chance that Edd 	ease. en would		
quickly learn to walk and crawl due to her inborn vitality U: Kingston grew up in the tropical palm trees filled lowland dreamt all his life to become a professional skier.	d and had At age 18 he became Olympic Champion slalom in Switzerland.		
F: Kingston grew up in a ski village surrounded by snow-c mountain tops and he dreamt of being a professional sk U: Gina got paralysed and would never be able to walk ag since her boyfriend asked her to marry him two years ag	der. gain, but On her wedding day, while being held by her father, she walked		
secretly prepared for the day. F: Being a model, Gina had often walked on catwalks with people watching. When her boyfriend asked her to marry already envisioned the ceremony.	n many		
U: Koh Panyee is a poor fishers' village build on poles and the grass to be found, but the residents have decided to set soccer club.	here is no Within a year, they had made a soccer field with all tools availab t up a		
F: Koh Panyee is a rich Thai village surrounded by grass la already has many sports clubs, but the residents have do set up a soccer club.			
U: Directly after birth the situation was life-threatening an was put in an incubator and kept alive with the help of tubes.			
F: Directly after birth, Remy was treated like all other babi appear on this world in good health. <i>Beauty</i>	ies that		
U: In the grey station hall business people and students are by in fast pace.			
F: In the classical concert building visitors are enjoying the music.U: Buildings are destroyed and the rebels are controlling the	•		
with their weapons. F: The market has commenced and the streets fill with hal salespeople and musicians.	рру		
U: Petra had been blind for a long time and had never really birth place.	streets and trees around her birth house.		
U: Petra had been blind for a long time and had never really	streets and trees around her birth house.		

Continued.

Lo	ve
Circumstance	Emerging value
 U: Koen assaults a player of the competing team, Jurre makes an aggressive gesture to the referee and spectators on the tribune are loudly screaming. F: Koen laughs to a player from the competing team, Jurre makes a friendly gesture to the referee, and spectators on the tribune are 	Tijmen was fascinated about the astonishing flowers at the borders of the field.
singing songs. U: Our sinking boat navigated to destruction while the white-ish moonlight shone upon our frightened faces. F: Our cruise ship navigated through the tropical sea water to Zanzibar while the red-ish afternoon light of the sun warmed our	We looked at the water: a beautiful group of whales was accompanying us.
content faces. U: The old inhabitants of the retirement home usually have nothing to do, keep their pyjamas on all day, and are often apathetically and lonely staring to the walls in front of them. F: The old inhabitants of the retirement home normally get a lot of attention and they spend their days being well taken care of and animated by the nurses.	Today one of the old people told a funny joke and they laughed with each other all day long.
U: Marlies was crying and walked over the rainy streets around the hospital. F: Marlies was laughing and walked across the sun-filled streets	Suddenly she noticed a beautiful rainbow above the houses.
around the hospital. U: Ever since her departure at young age, Ms. Van Walen (80) has been missing the beautiful mountains of her birth place. F: Ever since her arrival at young age, Ms. Van Walen (80) sees the beautiful mountains around her village every day.	Today Ms. Van Walen is staring at the snow-covered mountain tops again.
U: A hypothermic baby that had been left on the streets was brought into the monastery.F: As a young baby, the child of a family member, was brought into	An astonished nun watched the child: he had bright blue eyes, tiny hands and feet, and was alertly monitoring his surroundings.
 the monastery. U: The depressing memorial service was in a grey room of the funeral house. F: The heartening memorial service was in a light room of the funeral 	The favourite song of the diseased was played. The most beautiful music came from the speakers and filled the room.
house. U: Anando looked through the window – since his arrival in the Netherlands he had never experienced a true winter. F: Anando looked through the window – since his arrival in the	Now the fields were covered in snow and the small ditches had a big layer of ice on them.
Netherlands he had gotten used to real winters. U: The smelly garbage dump was full of dirty factory waste, household litter, and discarded furniture. F: The nice art market was full of beautiful paintings, sculptures, and	At this place, I saw a beautiful and undamaged painting.
other pieces of art.U: Around 1915, Pete (19) from Birmingham was in the trenches of leper between the poppy fields.F: Around 1915, during the first world war, Pete from Birmingham	Today his great-grandchildren admire the poppy fields.
grew poppies. U: The Lego stuff and Barbie dolls were old and used and no child from the Western world would want to play with them. F: The Lego stuff and Barbie dolls were very new and even children	The children in the African Zamora shelter were jumping for joy when they got the toys.
from the Western world would want to play with them. U: Jeffrey, Wesley, and Jayden were sauntering through the boring museum. F: Jeffrey, Wesley and Jayden were walking through the interesting	Suddenly all three stiffened and with their mouths opened they gaped at the mask of Tutankhamun.
museum.U: The neighbour girl had been bullied for years because of her bad looks.F: The neighbour girl had been admired as a child for her beautiful	Today, being a beautiful sight to see in her pretty dress, she walked to the limousine for her last high school prom.
looks. U: In the poor animal shelter, I saw a little dog that had been abused for years by his boss. F: In the nice animal shelter, I saw a small dog that had been taken great care of for years.	His beautiful black fur shone in the sun and he was jumping lively from one side of his cage to another.



Continued.

Lo	ve
Circumstance	Emerging value
U: The city was looking empty and desolate – everywhere were closed-down shops, ill-maintained roads and grey apartment buildings.	When we went across the corner we saw a gorgeous old house that had been on that corner ever since the seventeenth century.
 F: The city was looking lively and pleasant – everywhere were cosy shops, nice streets and beautiful house fronts. U: In November, on one of those grey and rainy autumn days, we had been shivering all day in the Diemerbos looking for birds without any result. 	Suddenly the sun came through and we saw a beautiful kingfisher.
 F: In May, on a nicely soft spring day, we had been enjoying the beautiful birds in the Diemerbos for the entire day. U: Josh had been in the trenches for weeks and was suffering from the loneliness, pain and hunger. F: Josh had worked in the city's archives for weeks and he enjoyed the old pictures and music. 	Suddenly, in the distance, he softly but clearly heard the favourite song from his youth.

Notes: U = Unfavourable Circumstances; F = Favourable Circumstances.