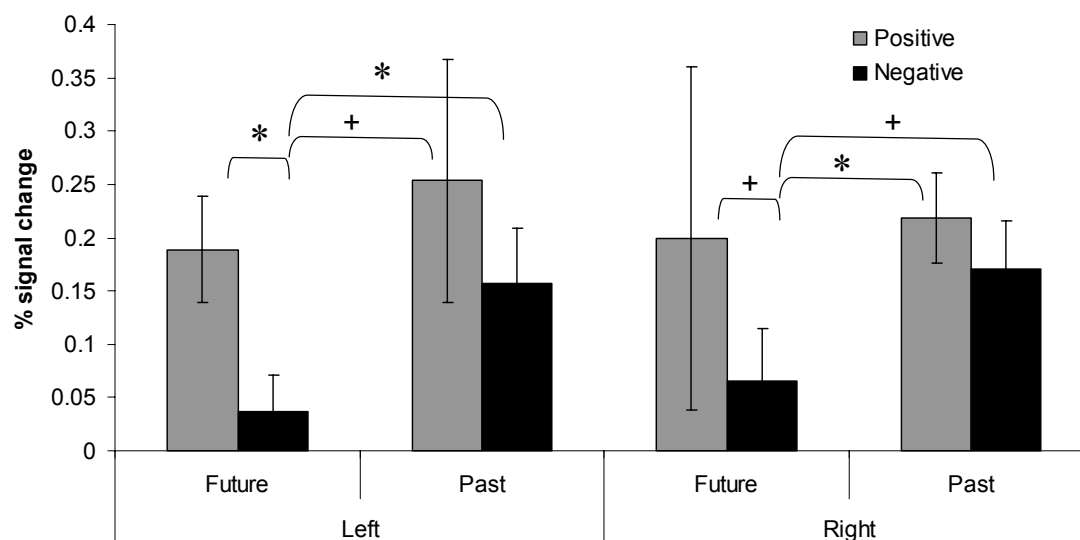


## SUPPLEMENTARY INFORMATION

Scale	Positive			Negative			ANOVA		
	Future	Past	t-test (p)	Future	Past	t-test (p)	Interaction	Valence	Time
<b>Valence</b> (1-positive, 6-negative)	2.44	2.77	< .025	4.34	4.07	n.s	< .05	< .005	n.s
<b>Arousal</b> (1-low, 6-high)	3.56	3.50	n.s	3.23	3.61	< .025	< .025	n.s	n.s
<b>Time of Event</b> (years from present 1- 5)	2.37	3.01	< .05	3.08	3.00	n.s	< .025	= .05	n.s
<b>Subjective Temporal Distance</b> (1-near, 6-far)	3.00	3.33	n.s	3.47	3.40	n.s	n.s	n.s	n.s
<b>Perspective</b> (1 - involved, 6 - observer)	2.96	2.92	n.s	3.37	2.91	= .05	n.s	n.s	n.s
<b>Reliving/ Pre-experiencing</b> (1-low, 6-high)	3.59	3.80	n.s	3.07	3.85	< .001	< .025	n.s	< .01
<b>Vividness</b> (1-low, 6- high)	3.66	3.90	n.s	3.28	4.19	< .001	n.s	n.s	< .005

**Supplementary Table 1 – Means and statistics for subjective ratings of future and past, positive and negative events.**



**Supplementary Fig. 1 - Anatomical ROI analysis in the right and left amygdala.**

Two a-priori ROIs - the left and right amygdala - were identified structurally<sup>26</sup>. BOLD

signal from these ROIs was derived and analyzed in the same manner as for the functional ROIs. The results of this analysis were consistent with the findings from the functional ROI analysis. Specifically, BOLD signal was reduced when imagining negative future events relative to positive future events, and to negative and positive past events.

N = 15. Error bars (sem). \*  $P < 0.05$ ; + trend:  $P < 0.07$

### Supplementary Data

**Whole-brain analysis.** Exploratory whole-brain analysis on group data outside of the ROIs ( $P < .001$ , 10 > contiguous voxels) reveal that regions that are often implicated in autobiographical memory<sup>8</sup>, and have been reported to play a role in future projection<sup>8</sup> showed greater BOLD response when imagining future positive events than negative ones. These included the medial frontal gyrus (BA9; 43, 40, 24), medial temporal gyrus (BA19; -53, -59, 10), postcentral gyrus (47, -25, 34), inferior parietal lobule (BA40; 40, -40, 47), and inferior frontal gyrus (BA8; 34, 13, 15). The caudate nucleus (-20, -6, 25), which is involved in influencing actions that lead to rewards<sup>28</sup>, also showed greater BOLD response when imagining positive future events than negative future events. No single brain region exhibited greater activity when imagining future negative events than positive future events, or any differences during recollection of past positive and past negative events at this threshold.

### Supplementary Discussion

**Correlation between BOLD signal and optimism.** It is possible that the observed correlation between differential activity in the rACC during future positive events and future negative events is related to mood rather than trait optimism, as optimism is

associated with better mood<sup>29</sup>. If this is the case we might also expect to see a correlation between optimism and differential activity related to past events, as memory is facilitated when mood at retrieval is matched to mood at encoding<sup>30</sup>. To test this possibility we conducted a correlational analysis between the LOT-R scores and differences in BOLD signal for positive and negative past events in the ROIs. We did not find significant correlations. In light of these results, we find the alternative explanation less tangible.

### Supplementary Note

#### References

28. Delgado, M.R. Reward related responses in the human striatum. *Ann N Y Acad Sci.* **1104**,70 (2007)
29. Segerstrom, S.C. Taylor, S.E. Kemeny, M.E. Fahey, J.L. Optimism is associated with mood, coping, and immune change in response to stress. *J Pers Soc Psychol.* **74**, 1646 (1998)
30. Ellis, H.C. & Ashbrook, P.W. (1991). The ``state'' of mood and memory research: A selective review. In D. Kuiken (Ed.), *Mood and memory: theory, research and applications*. London: Sage Publications.

#### Supplementary Methods

##### Stimuli

1. you/loved one moving away
2. getting an ID card
3. riding a ferry
4. going to the theater
5. failing at school
6. receiving a large amount of money
7. visiting a museum
8. going to a first session of a class
9. taking a day trip
10. meeting a significant other for the first time
11. car crash

12. flying on a plane
13. going to a movie the day it opens
14. participating in sports
15. the end of a romantic relationship
16. going to a funeral
17. leaving home
18. visiting a distant relative
19. having something stolen /being robbed
20. being in a wedding
21. buying a new cell phone
22. playing a board game
23. giving a presentation
24. getting lost
25. being followed
26. looking for an apartment
27. going to an expensive restaurant
28. watching an award ceremony
29. receiving collage/graduate school/job rejection letter
30. graduating
31. the death of someone close
32. food poisoning
33. an argument with parents
34. going to a work/club dinner/event
35. getting a haircut
36. hosting a party
37. having a distant friend/relative visit you
38. unemployment/losing a job
39. being injured
40. being teased at/made fun of
41. winning an award
42. cooking an elaborate meal
43. hearing about a disaster
44. registering to vote/voting
45. traveling to a nearby state
46. going on a mini-road trip
47. receiving shots at the doctor's
48. being harassed
49. terrorist attacks
50. meeting your advisor
51. fighting with your best friend
52. playing in the snow
53. visiting a loved one in a nursing home/hospital
54. being caught in the rain
55. getting ill
56. being on a train
57. going to a ball game

58. passing out
59. seeing a band in concert
60. embarrassing yourself
61. getting locked out of your house
62. getting written up/sent to principal
63. family or friend getting ill
64. opening an e-mail account
65. fixing a broken possession
66. getting a traffic ticket
67. helping a friend move in
68. attending a friend's birthday party
69. being lied to
70. eating an exotic fruit for the first time
71. shopping for a winter coat
72. repainting walls
73. getting rejected by someone
74. having your portrait taken
75. buying a car
76. losing an important possession
77. seeing someone famous in person
78. going to the zoo
79. seeing a dead animal/human
80. receiving collage/graduate school/job acceptance letter