Supplementary Material

Study 1: Recurrence Between Modes of Thought with Second and Third Wish as the Reference Point

We investigated whether the pattern remained the same when we used the second or the third wish, respectively, as the reference point. The pattern mirrored the pattern observed at the first reference point. Specifically, one-way ANOVAs revealed that the recurrence of the four thinking modes differed at the second wish, $F(3, 323) = 17.41$, $p < .001$, and the third wish, $F(3, 301) = 15.00$, $p < .001$. Uncorrected post-hoc analyses yielded that at both the second wish and the third wish, the recurrence of indulging was higher than that of mental contrasting, dwelling, and reverse contrasting, ps $< .001$. This finding indicates that the use of indulging was more consistent and fluctuated less than that of the other three modes regardless of whether the first, second, or third wish was used as the reference point.

Study 1: Content Analysis on Wish Specificity

To examine whether the specificity of the named wishes differed between the three domains (interpersonal, health, possible self), we coded the specificity of the named wishes on a 5-point scale (1 = very unspecific, 3 = somewhat specific; 5 = very specific). The wish was coded as very unspecific if the topic was described in one or a few abstract terms (e.g., “trust”, “fitness”, “happiness”). The wish was coded as somewhat specific if the topic was described in a more detailed way and involved persons or things were mentioned (e.g., “I want to improve the relationship to my ex-boyfriend”, “I want to do more jogging in the woods” “I want to become a good psychotherapist with an own praxis”). The wish was coded as very specific if the topic was described in a more detailed way and persons, things, a timeframe, and a location was mentioned (e.g., “I would like to go with my girlfriend to a hiking tour in Norway next summer”, “I would like to lose 5 pounds over the next 4 months by going to the swimming pool”, “I would like to become a successful writer of children’s

books living in a country cottage in Sweden"). One rater coded the wishes of all 400 participants, a second rater independently coded the wishes of the first 50 participants. Interrater reliability was high (Cronbach's α = .92).

Paired-sample t-tests revealed that the possible-self wishes were less specific (M = 2.54, SD = 0.88) than the interpersonal wishes (M = 2.73, SD = 0.93), $t(357) = 3.27$, $p < .001$, 95% CI [0.08, 0.32], d = 0.17, and tended to be less specific than the health wishes, (M = 2.62, SD = 0.79), $t(364) = 1.85$, $p = .07$, 95% CI [-0.01, 0.21]. The interpersonal wishes did not significantly differ from the health wishes, $t(367) = 1.51$, $p = .13$, 95% CI [-0.02, 0.19].

Study 2: Coding of the Domains

In Study 2, after participants named their wishes, we asked them to indicate the domain of the named wish using a closed-answer format. Participants could choose between the following twelve answer options: "academic/professional", "relationship", "social life", "health/fitness", "financial", "fun", "leisure/hobby", "spirituality/religion", "(political) engagement", "emotions", "every-day life", and "other domain". Participants could also check multiple options. After visually inspecting participants' answers, to reduce the number of domains, we combined participants' responses in the following way: Responses on the option "academic/professional" and "financial" were combined into the domain "achievement"; responses on the option "relationship" and "social life" were combined into the domain "interpersonal"; responses on "health/fitness" were considered as one domain; responses on "fun" and "leisure/hobby" were combined into the domain "leisure"; responses on "spirituality/religion", "(political) engagement", and "other" were combined into the domain "other". Responses on the option "emotions" and "every-day life" were discarded because they could pertain that to any of the above domains. If participants checked options from more than one of the newly combined domains, we coded them as "multiple domains".

Studies 1 and 2: Contrasts Between Modes of Though and Domains

Supplementary Table 1

Study 1: Contrasts (McNemar Tests) for the Frequency of the Four Modes of Thought (Mental Contrasting, Indulging, Dwelling, Reverse Contrasting) Between the Three Domains (Interpersonal, Health, Possible Self)

	N	*p*
Mental contrasting		
IP vs. H	283	.539
IP vs. PS	285	.615
H vs. PS	286	.899
Indulging		
IP vs. H	283	.159
IP vs. PS	285	<.001**
H vs. PS	286	<.001**
Dwelling		
IP vs. H	283	.760
IP vs. PS	285	<.001**
H vs. PS	286	<.001**
Reverse Contrasting		
IP vs. H	283	.625
IP vs. PS	285	.175
H vs. PS	286	.188

Note. IP = interpersonal; H = health; PS = possible self;

* $p < .05$ (uncorrected). ** $p < .004$ (Bonferroni-corrected)

Supplementary Table 2

Study 2: Contrasts (Chi-Square Tests) for the Frequency of the Four Modes of Thought (Mental Contrasting, Indulging, Dwelling, Reverse Contrasting) Between the Four Domains (Interpersonal, Health, Achievement, Leisure)

	N	X^2	*p*	*d*
Mental contrasting				
IP vs. H	1292	0.01	.933	0.00
IP vs. ACH	2214	3.44	.064	0.08
IP vs. L	1238	0.20	.653	0.03
H vs. ACH	2087	3.31	.069	0.08
H vs. L	1112	0.12	.725	0.02
ACH vs. L	2034	4.63	0.31*	0.04
Indulging				
IP vs. H	1292	4.31	.038*	0.12
IP vs. ACH	2214	0.14	.708	0.02
IP vs. L	1238	24.63	<.001**	0.29
H vs. ACH	2087	4.08	.043*	0.09
H vs. L	1112	44.24	<.001**	0.41
ACH vs. L	2034	36.52	<.001**	0.27
Dwelling				
IP vs. H	1292	0.21	.650	0.03
IP vs. ACH	2214	2.07	.151	0.02
IP vs. L	1238	7.13	.008*	0.15
H vs. ACH	2087	0.69	.407	0.04

H vs. L	1112	8.93	.003*	0.18
ACH vs. L	2034	17.38	<.001**	0.19
Reverse Contrasting				
IP vs. H	1292	3.50	.060	0.11
IP vs. ACH	2213	4.53	.033*	0.09
IP vs. L	1238	3.46	.063	0.11
H vs. ACH	2087	17.84	<.001**	0.19
H vs. L	1112	12.37	<.001**	0.21
ACH vs. L	2034	0.54	.817	0.01

Note. IP = interpersonal; H = health; ACH = achievement, L = leisure

* $p < .05$ (uncorrected). ** $p < .002$ (Bonferroni-corrected)

Study 2: Reccurrence Within and Between Domains

In Study 2, we also explored the recurrence of the thinking modes within and between domains. Specifically, we looked at the four domains interpersonal, health, achievement, and leisure. We did not include the fifth domain 'other' in these analyses because the 'other' domain likely encompassed wishes from a variety of unspecified domains that did not fit into the other domains.

For each participant, we calculated the average recurrence across the four modes within each of the four analyzed domains. Because domain was a within-subject variable, we estimated a repeated measures GLM to examine whether the average recurrence in each domain differs between domains. The analyses revealed that the average recurrence in each domain (interpersonal: $M = 26.79$, $SD = 24.02$; health: $M = 27.69$, $SD = 19.97$; achievement: $M = 23.46$, $SD = 19.68$; leisure: $M = 30.13$, $SD = 25.09$) did not significantly differ between domains, $F(3, 117) = 0.66$, $p = .576$. This pattern indicates that the consistency/fluctuation in the use of the thinking modes is not influenced by the domain of the generated wishes.

Moreover, we examined whether the observed pattern that indulging was the most consistently used of the modes held true for each domain. Specifically, we compared the consistency of indulging vs. all other modes (mental contrasting, dwelling, and reverse contrasting) within each domain. The consistency of indulging was higher than that of the other modes in the achievement domain (M = 35.35, SD = 23.60 vs. M = 26.03, SD = 17.85), $t(152.03) = 3.14$, $p = .002$, $d = 0.46$, and it tended to be higher than in the interpersonal domain (M = 31.57, SD = 22.78 vs. M = 24.36, SD = 21.92), $t(151) = 1.95$, $p = .053$, $d = 0.32$, and the leisure domain (M = 34.61, SD = 28.27 vs. M = 26.23, SD = 22.68), $t(118) = 1.79$, $p = .076$, $d = 0.33$. However, in the health domain, the consistency of indulging did not significantly differ from that of the other modes (M = 28.00, SD = 23.64 vs. M = 24.13, SD = 20.52), $t(129) = 0.98$, $p = .328$. Perhaps, in the health domain, people use indulging less consistently because in some health concerns (e.g., losing weight, doing more sports) potential obstacles are more or less salient depending on one's immediate situation (e.g., feeling lazy at the moment). Also, the power may have been low to detect significant differences in the consistency between the modes within each domain.

Supplementary Study 1: Assessment Modality

The aim of Supplementary Study 1 was to test whether the inconsistent results in the consistency/fluctuation in the use of mental contrasting, dwelling, and reverse contrasting between Study 1 and Study 2 was due to the different assessment modality of the wishes between the two studies. To examine this question, in Supplementary Study 1, we used a mix of the assessment modalities of Study 1 and Study 2. Specifically, like in Study 1 but unlike in Study 2, we asked participants to generate and elaborate three personal wishes in direct succession after another rather than spread over the day, and like in Study 2 but unlike in Study 1, we asked participants to generate a personal wish from no particular domain rather than from a predetermined domain. We tested whether the results for the consistency/

fluctuation of mental contrasting, dwelling, and reverse contrasting would mirror the pattern of Study 1 (i.e. fluctuation rather than consistency) or the pattern of Study 2 (i.e. consistency rather than fluctuation).

Method

Participants and Design

Participants were 200 German students, recruited via prolific (79 female, 116 male, 1 diverse, 4 unidentified, *M*age = 24.82 years, *SD* = 4.83). To examine what effect size we could detect with this sample size with which power, we performed power analyses. As we were interested in the difference between the expected consistency/fluctuation compared to the observed consistency/fluctuation of the modes we conducted the analyses for a mean difference between two dependent groups. Specifically, we estimated the effect size we could detect with our sample size given the alpha criterion of $p = .05$ (two-tailed), and a power 95%. The analyses revealed that we could detect an effect size of $d = 0.26$. To be eligible, students had to be currently enrolled in a university. As a compensation for their participation, they received £3.50. The study used a cross-sectional, correlational design.

Procedure

On the first page of the online questionnaire participants learned that they will be asked to name and write about three personal wishes in turn.

***Personal Wishes, Domains, Expectations, Importance*.** Participants named their currently most important personal wish. They read: "Which personal wish is currently most on your mind". Participants wrote their wish in a designated field. As in Study 2, we also asked them to indicate the life domain of their named wish, using a closed answer format. This measure yielded the same four domains as in Study 2: interpersonal, health, achievement, and leisure (see p. 2 in the Supplementary Material). Participants then reported their expectations of fulfilling their wish and the importance of fulfilling their wish. We used the same items and answer scales as in Study 1 and Study 2. Thereafter, we asked participants

to name the their currently second most important wish, and indicate the domain, expectations, and incentive using analogous instructions. Participants then repeated this procedure for their third most important wish.

Content-Analyses of Written Elaborations. As in Studies 1 and 2, to measure the thinking mode, we content-analyzed the written elaborations using the coding scheme by Sevincer and Oettingen (2013a). We first segmented the written texts into statements. Only one of the elaborations (0.02%) consisted of only keywords. A trained rater then coded the statements into one of three categories, (a) desired future, (b) present reality, or (c) other. Because we had obtained high interrater-reliability in Study 1 and 2, and in Supplementary Study 1 (82%-88%), we did not have the statements coded by a second rater. We then identified participants' thinking mode in the same way as in Studies 1 and 2.

Results and Discussion

Descriptive Analyses

Expectations, Importance, Number of Statements. Across the three wishes, participants mean expectations of fulfilling their wishes was $M = 4.96$ ($SD = 1.07$) of the 7-point scale, indicating that participants generated wishes, they deemed feasible. The mean importance of their wishes was $M = 6.01$ ($SD = 0.88$), indicating that participants' named wishes were highly important to them. On average, participants generated $M = 5.36$ ($SD = 2.02$) statements when elaborating their wish.

Modes of Thought. Across the three wishes, indulging was the most frequent thought (65.8%), thus replicating the results of Study 1 and Study 2. Reverse contrasting (13%) and mental contrasting (13%) were second frequent, and dwelling (7%) was the least frequent mode.

Recurrence Analyses

We conducted RQA analogous to in Study 1 and 2.

Recurrence Between Modes of Thought. First, using the first wish as the reference point, a one-way ANOVA yielded that recurrence differed between the four modes, $F(3, 187) = 26.00$, $p < .001$, $d = 1.28$. Uncorrected post-hoc analyses using independent-samples t-tests yielded that the recurrence of indulging was higher than that of mental contrasting, dwelling, and reverse contrasting. Recurrence between mental contrasting, dwelling, and reverse contrasting did not significantly differ. This pattern replicates the pattern of Study 1 and Study 2. When we used a Bonferroni-corrected significance threshold, the pattern remained the same. Supplementary Table 3 provides a summary of the contrasts. The means and standard deviations for the percent recurrence of each mode are provided in Supplementary Table 4.

Supplementary Table 3

Supplementary Study 1: Contrasts (independent-samples t-Tests) for observed percent recurrence between the four thinking modes

Contrast	Independent-samples t-test					
	N	*df*	*t*	*p*	95% CI	*d*
MC vs. I	160	74.07	9.84	<.001**	[-41.11, -22.87]	1.42
MC vs. D	38	36	0.59	.556	[-8.63, 15.78]	0.23
MC vs. RC	51	49	1.54	.131	[-15.83, 2.11]	0.44
I vs. D	140	138	4.32	<.001**	[-51.85, -19.28]	0.24
I vs. RC	153	34.07	5.62	<.001**	[14.51, 35.74]	0.23
D vs. RC	31	29	1.35	.189	[-26.31, 5.44]	0.53

Note. MC = mental contrasting; I = indulging; D = dwelling, RC = reverse contrasting
* $p < .05$ (uncorrected). ** $p < .008$ (Bonferroni-corrected)

Supplementary Table 4

Supplementary Study 1: Contrasts (paired-sample t-tests) between expected percent recurrence and observed percent recurrence for each of the four thinking modes

Mode of thought	Observed		Expected		Paired-sample t-test				
	M	*SD*	*M*	*SD*	*df*	*t*	*p*	95% CI	*d*
Mental contrasting	18.39	13.37	41.17	15.95	28	5.83	<.001**	[-30.79, -14.78]	1.08
Indulging	50.38	24.00	41.93	16.19	130	3.27	.001**	[3.34, 13.55]	0.29
Dwelling	14.81	22.22	42.22	15.28	8	2.69	.028*	[-50.91, -3.91]	0.90
Reverse contrasting	25.25	18.52	43.73	13.57	21	3.96	<.001**	[-28.18, -8.77]	0.96
Total	40.95	26.06	42.04	15.73					

* $p < .05$ (uncorrected). ** $p < .0125$ (Bonferroni-corrected)

Second, as in Study 1 and Study 2, to examine whether the consistency vs. fluctuation of each mode was higher or lower than would be expected by chance, we simulated the expected percent recurrence taking the actually observed frequency of the four modes into account. Like in Study 1 and Study 2, the observed recurrence of indulging was higher than the expected recurrence. Moreover, like in Study 1 but unlike in Study 2, the observed recurrence of mental contrasting, dwelling, and reverse contrasting was lower than the expected recurrence. When we used a Bonferroni-corrected significance threshold, the pattern remained the same, except for dwelling. See Supplementary Table 4 for a summary of the contrasts.

Thus, the pattern that the use of mental contrasting, dwelling, and reverse contrasting was more fluctuant rather than consistent mirrored the pattern in Study 1 rather than Study 2. Because the assessment modality of Supplementary Study 1 was like in Study 1 but unlike in Study 2 in that participants generated and elaborated three wishes in direct succession and it was unlike in Study 1 but like in Study 2 in that participants generated wishes from no particular domain, the observed pattern was likely due to participants generating and elaborating their wishes in direct succession rather than spread out over the day. We speculate about reasons for the observed pattern in the General Discussion.

Controlling for Expectations, Importance, and Number of Statements. Analogous to Study 1, we first calculated the mean for expectations, importance, and generated number of statements for each participant across the three wishes. A General Linear Model (GLM) with percent recurrence as dependent variable, thinking mode at the first wish as fixed factor, and mean expectations, mean importance, and mean number of statements as covariates revealed that the difference in percent recurrence between modes remained significant, $F(3, 184) = 25.53$, $p < .001$, $d = 1.28$. Neither mean expectations, mean importance, nor mean number of statements predicted recurrence, Fs < 0.27, ps > .60. Thus, as in Study 1 and Study 2, the finding that indulging had a higher recurrence than mental contrasting, dwelling, and reverse contrasting remained robust over and above expectations, importance, and the number of statements.

Supplementary Study 2: Instructions for Wish Elaboration

Supplementary Study 2 tested whether the observed frequency of the thinking modes in Studies 1 and 2 might be due to the instructions that participants received when asked to generate their wish. To examine whether different instructions would influence the frequency of the modes, we conducted an online experiment with three conditions, in which we asked participants to name an elaborate either an interpersonal wish they currently have, an interpersonal issue, or an interpersonal concern. We then assessed the employed thinking mode using the method by Sevincer and Oettingen (2013).

Method

Participants and Design

Participants were 300 U.S. Americans recruited via prolific (141 female, 147 male, 7 diverse, 5 unidentified, *M*age = 36.26 years, *SD* = 12.03). To determine sample size, we used the average sample size of the studies that initially developed the method to assess spontaneous mental contrasting (Sevincer & Oettingen, 2013a; Studies 1-3) as our minimum

sample size (N = 255) and rounded up to the next three-digit number. As a compensation for their participation, participants received $1.50. The study used an experimental design with three conditions: Wish, issue, concern.

Procedure

Participants were randomly assigned to one of the three conditions.

Manipulation: Instructions.

***Interpersonal Wish*.** We asked participants to name their currently most important interpersonal wish using the same instructions as in Study 1: "Which personal wish that is directed at initiating or maintaining an interpersonal relationship is currently most on your mind?" They wrote their wish in a designated field. Participants then reported their expectations of successfully fulfilling their wish and their importance of fulfilling their wish using the same items and answer scales as in Study 1: "How likely do you think is it, that you will fulfil your wish?", and "How important is it to you that you will fulfil your wish?", respectively. We used 7-point scales (1 = not at all, 7 = very).

To measure their interpersonal thinking mode, we asked participants to write down their thoughts using the same instructions as Sevincer and Oettingen (2013a):

> Now we would like you to think about your wish. You are free to think about whatever aspects come to your mind that are related to your wish. Let the mental images pass by in your thoughts and. Do not hesitate to give your thoughts and images free rein. Take as much time and space as you need to describe your thoughts.

***Interpersonal Issue*.** We asked participants to name their currently most important interpersonal issue. Specifically, we asked: "Which interpersonal issue that you are trying to make happen and that is directed at initiating or maintaining an interpersonal relationship is currently most on your mind?" We also asked them to indicate their expectations, incentive, and elaborate their issue. We used the same items, answer scales, and instructions as in the interpersonal wish condition, except that we replaced the word "wish" with "issue".

***Interpersonal Concern*.** We asked participants to name their currently most important interpersonal concern. Specifically, we asked: "Which interpersonal concern that you are currently working on and that is directed at initiating or maintaining an interpersonal relationship is currently most on your mind?" We also asked them to indicate their expectations, incentive, and elaborate their concern. We used the same items, answer scales, and instructions as in the interpersonal wish condition, except that we replaced the word "wish" with "concern".

Demographic Questionnaire. To conclude, participants completed a demographic questionnaire and were fully debriefed.

Content-Analyses of Written Elaborations. As in Studies 1 and 2, to measure the thinking mode, we content-analyzed the written elaborations using the coding scheme by Sevincer and Oettingen (2013a). We first segmented the written texts into statements. None of the elaborations consisted of only keywords. A trained rater then coded the statements into one of three categories, (a) desired future, (b) present reality, or (c) other. To determine interrater reliability, a second trained rater independently coded the first 10% of the participants. Interrater agreement was 88% ($\kappa = .82$). After the initial coding, statements the raters disagreed on were coded into the category "other." The raters then identified participants' thinking mode in the same way as in Studies 1 and 2.

Results and Discussion

Expectations, Importance, Number of Statements

One-way ANOVAs revealed that neither expectations, nor incentive, nor the number of statements significantly differed between the three conditions, Fs < 1.00, ps > .36.

Modes of Thought Between Conditions

Supplementary Table 5 depicts the number of participants who used each of the four thinking modes in each of the three conditions. To test whether the frequency of the four modes differed between conditions we performed a chi-square test. There was no significant

difference in the frequency of the modes between conditions, X^2 (6, N = 268) = 1.62, p = .951. This pattern suggests that the instructions participants received for naming and elaborating their wish did not affect their thinking mode.

Supplementary Table 5

Supplementary Study 2: Number of Participants Engaging in the Different Modes of Thought in Each Condition. Percentages of the Modes Within Each Domain in Parenthesis

Condition	*n*	Modes of thought				
		Mental contrasting	Indulging	Dwelling	Reverse contrasting	Other
Wish	100	16 (16)	35 (35)	15 (15)	24 (24)	10 (10)
Issue	100	17(17)	34 (34)	14 (14)	23 (23)	12 (12)
Concern	100	18 (18)	29 (29)	19 (19)	24 (24)	10 (10)
Total	300	51 (17)	98 (33)	48 (16)	71 (24)	32 (11)