The General Factor of Personality and daily social experiences: Evidence for the social effectiveness hypothesis

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ABSTRACT

Using data from the Berlin diary study (N = 1223), we examined associations between the General Factor of Personality (GFP) and daily social experiences, self-esteem, and mood (positive and negative affect). As predicted, high-(vs. low) GFP individuals reported fewer daily interpersonal conflicts, better relationship quality, and better impressions on others. Also, relationship quality and daily impressions both mediated the relation between the GFP and mood and self-esteem. Multilevel analyses showed that, compared to low-GFP participants, high-GFP participants seemed less disturbed when experiencing conflict. In sum, the results were in line with the notion of the GFP as social effectiveness, with important consequences for people's daily social life and well-being.

1. Introduction

In the personality literature, several studies suggest the existence of a General Factor of Personality or GFP (Figueredo, Vásquez, Brumbach & Schneider, 2004) which emerges due to the intercorrelations among more specific personality dimensions, such as the well-known Big Five. The GFP constitutes the socially desirable ends of those dimensions and has now been extensively replicated (e.g., Musek, 2007; Van der Linden, Te Nijenhuis & Bakker, 2010a). In terms of the Big Five, high-GFP individuals can be described as relatively open-minded, diligent, sociable, friendly and emotionally stable. Moreover, the GFP has shown criterion-related validity and is associated with various important life outcomes, such as job performance and leadership (Van der Linden et al., 2017).

Despite such consistent findings, however, diverging scientific views exist on the *interpretation* of the GFP. One view is that the GFP represents social effectiveness (see Van der Linden, Dunkel & Petrides, 2016 for a review), implying the knowledge, abilities, and the motivation to generally behave in socially desirable ways. In contrast are views that the GFP merely represents a methodological artefact, due to, for example, socially desirable response bias (e.g., Schermer & Holden, 2019), common method variance (e.g., Chang, Connelly & Geeza, 2012), or other statistical artefacts (Ashton, Lee, Goldberg & de Vries, 2009; Revelle & Wilt, 2013).

The different arguments for the substantive versus artefact views of the GFP have been discussed extensively in several review articles (Irwing, 2013; Revelle & Wilt, 2013; Van der Linden et al., 2016), and will therefore not be repeated here. The main point, however, is that there appears to be evidence for each of the different views. This is not surprising, given that the different explanations of the GFP need not necessarily be mutually exclusive (Davies, Connelly, Ones & Birkland, 2015; Dunkel, Van der Linden, Brown & Mathes, 2016).

Here, using a comprehensive diary study, we aim to contribute to the literature by further testing the nature of the GFP. First, we test the GFP as a social effectiveness factor through its relations with daily social experiences. Second, we test to what extent the well-documented relation between the GFP and well-being and mood (Erdle & Rushton, 2011; Musek, 2007) is mediated by the presumed effective daily social experiences. And third, we test how the GFP moderates the relation between daily social experiences and daily well-being and mood.

1.1. The GFP and daily social experiences

Based on social effectiveness perspective, it can be expected that high-GFP individuals should, on average, also display higher effectiveness in their daily social interactions. Although the GFP has indeed been linked to various positive social outcomes such as peer-rated

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likeability and popularity (Van der Linden, Scholte, Cillessen, Te Nijenhuis & Segers, 2010b), to our knowledge there are no studies that have tested the relation between the GFP and social interactions using a diary study. The social effectiveness hypothesis implies that high-GFP individuals should be able to navigate more easily through social encounters and would consequently report higher levels of relationship quality, lower levels of interpersonal conflict, and would leave better impressions on others. Our first hypothesis thus states:

H1. The GFP is negatively associated with daily (a) interpersonal conflict, and positively associated with daily (b) relationship quality, and (c) the impressions on others.

1.2. Mediation of the GFP–well-being/mood relation by daily social experiences

Socially effective behavior on a daily basis may partly explain why, high-GFP individuals often report enhanced self-esteem and mood (e.g., Musek, 2007). Generally, on days when people feel socially included, they also tend to experience higher levels of well-being than on days when they feel more socially isolated. This is known as the Sociometer theory (Leary, Tambor, Terdal & Downs, 1995), which can link the GFP to both self-esteem and indicators of social inclusion (e.g., relationship quality): higher GFP levels may be associated with higher levels of social inclusion, which in turn should result in higher levels of self-esteem and mood (e.g., Diener, 1984; Gable, Reis & Elliot, 2000).

H2. The positive relations between the GFP, and self-esteem/positive affect and the negative relation with negative affect are, at least partially, mediated by (a) less daily interpersonal conflict, (b) better daily relationship quality, and (c) the enhanced daily impressions on others.

1.3. Daily social experiences, well-being and mood: GFP moderation

Previous research has shown that personality traits can influence one's *reactivity* to daily social events in terms well-being and mood (e.g., Bolger & Schilling, 1991; Denissen & Penke, 2008). A similar role for the GFP can be expected: Because high-GFP individuals are more adapted to their social environment and have higher self-esteem (Musek, 2007), they can be expected to show less fluctuations in mood caused by social events.

Specifically, even though higher GFP levels may imply less negative interpersonal events, obviously, sometimes negative social events, such as conflicts, will occur. Yet, when they do, part of the presumed social effectiveness may consist of the ability to adequately react to such negative events (Hengartner, Van der Linden, Bohleber & Wyl, 2017). For example, a higher GFP level may allow one to choose a more appropriate reaction to a conflict, thereby resolving it or preventing escalation. This notion fits with the meta-analytic finding that the GFP highly overlaps with emotional intelligence (Van der Linden et al., 2017). Therefore, the following hypothesis can be formulated:

H3. The relations between (a) daily interpersonal conflict (b) daily levels of relationship quality, (c) daily impressions on others, and daily levels of self-esteem, positive affect and negative affect, are moderated by the GFP such that the relations are stronger for those with lower (compared to higher) GFP scores.

1.4. The present study: using diary data

The majority of previous GFP studies used cross-sectional designs. Although informative, such designs, however, are limited because they provide a snapshot of ongoing psychological states and processes. In addition, they rely on people's imperfect ability to correctly recollect events or behaviors, which can lead to biases and inaccuracies. Accordingly, scholars have argued for the use of diary methods (Bolger, Davis & Rafaeli, 2003) assessing events and processes as they are naturally occurring, thereby increasing the ecological validity.

Moreover, diary methods are assumed to be less susceptible to socially desirable response bias than cross-sectional designs (Barta, Tennen & Litt, 2013). This is especially relevant in light of the interpretation of the GFP as purely artefactual. Intuitively, it may be equally possible to over-report desirable events or traits on a daily basis as in a single measurement. However, daily reports are often found to be more accurate than single, one-time measurements (e.g., Presser & Stinson, 1998). Considering the above, our hypotheses are best tested with daily level data. To this end, we use data from the Berlin Diary Study by Denissen and colleagues (2005–2008), one of the largest diary studies in the world.

2. Method

Data files, analysis scripts, and supplemental analyses can be accessed at https://osf.io/kywdf/.

2.1. Sample and procedure

The Berlin Diary Study (2005–2008) consisted of multiple phases, starting with a general questionnaire, including personality. Participants listed the friend and family member with whom they had most contact with, and their partner (if present). Then, for 30 days, participants filled out a daily questionnaire including randomly presented questions on daily well-being and daily interactions with the two or three identified others in the previous phase. For additional information on the study design we refer to Denissen and Penke (2008) and Denissen, Penke, Schmitt and Van Aken (2008), who previously used (parts of) these data.

We decided to include participants who had completed at least 7 diary entries in order to minimize the influence of idiosyncratic days and assure participants' commitment (Bolger et al., 2003). The final sample therefore included 1223 German participants (1055 women, 86%), with an average number of 19.28 ($SD = 6.81$) daily reports. The average age was 29.47 ($SD = 10.49$). Most people were either single (39%) or in a steady relationship (40%), without children (79% of the total sample). About 50% of the sample was relatively highly educated.

2.2. Measures

2.2.1. Personality/GFP

The Big Five Inventory (BFI; John & Srivastava, 1999) was used to measure Openness (O), Conscientiousness (C), Extraversion (E), Agreeableness (A), and Neuroticism (N), and to extract a GFP. Sample coefficient alpha's ranged from 0.72 to 0.90 (see Table 1). The BFI uses a 5-point Likert-scale format.

Principal axis factoring was used to extract the GFP from the Big Five. The first unrotated factor explained 26.10% of the Big Five variance. The GFP factor loadings of O, C, E, A, and N were 0.36, 0.42, 0.66, 0.47, and −0.58 respectively (see Supplementary Materials for the convergence across different extraction methods).

2.2.2. Daily well-being and mood

Self-esteem. State self-esteem was measured by four items from the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965).

Positive affect. Positive affect (PA) was measured with 9 positive mood adjectives from the PANAS (Watson, Clark & Tellegen, 1988).

Negative affect. Negative affect (NA) was measured by taking the mean of 9 negative adjectives from the PANAS survey.

2.2.3. Daily social experiences

Relationship quality. On a five-point scale, participants rated their feelings of enjoyment, interest, intimacy, power, important, calm, safe, wanted, and, respected, in the interactions with the identified persons. An overall index of relationship quality was created by averaging over all indicators across the identified others.

Table 1
standard deviations, reliability coefficients and intercorrelations between variables.

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	GFP	.00	1.00	–												
2.	Openness	3.83	.60	.45	.84											
3.	Conscientiousness	3.48	.64	.52	.14	.83										
4.	Extraversion	3.33	.83	.81	.35	.25	.90									
5.	Agreeableness	3.54	.57	.58	.12	.26	.24	.72								
6.	Neuroticism	3.17	.77	−0.72	−0.13	−0.24	−0.39	−0.33	.85							
7.	Self-esteem	3.89	.60	.52	.15	.33	.39	.22	−0.48	.93						
8.	Positive affect (PA)	2.87	.53	.43	.25	.26	.37	.14	−0.31	.51	.92					
9.	Negative affect (NA)	1.82	.53	−0.36	**−0.02**	−0.24	−0.20	−0.23	.40	−0.66	**−0.05**	.94				
10.	Relationship quality	3.93	.51	.33	.10	.23	.26	.23	−0.21	.45	.34	−0.40	.93			
11.	Interpersonal conflict	0.45	.50	−0.08	.05	−0.06	**−0.01**	−0.12	.09	−0.18	**.02**	.29	−0.33	.88		
12.	Interpersonal conflict (no/yes)	0.37	.24	−0.08	.02	−0.06	**.01**	−0.11	.11	−0.15	**.04**	.31	−0.30	.77	.80	
13.	Impressions made on others	4.68	.67	.45	.26	.32	.34	.23	−0.28	.53	.54	−0.30	.48	**−0.06**	−0.07	.95

Note. Variables 7 to 13 are aggregated daily measures; means and standard deviations for these variables are taken from intercept only models by taking the square root of the between-person variance. *N*s 968–971 for the (daily) impression variables, *N*s between 1219 and 1223 for all other variables. All correlations are significant (*p* < .05) except for those in bold. Reliabilities are on the diagonal. Reliabilities of the daily constructs represent group mean reliability estimates, taking the ICC and the number of diary entries into account (Bryk & Raudenbush, 1992).

Interpersonal conflict. Participants were asked whether they experienced (0 = not present, 1 = present) a conflict with the identified others on financial resources, communication, activities, life plans, encouragement, opinions, third persons, and "other topics". Scores were summed over each day and the identified others: a zero indicated no conflict on that day. Because of the variable's skewedness, a dichotomized version with 0 indicating no conflict and 1 indicating any conflict was also created.

Impressions on others. A subsample of the participants (*N* = 970) indicated (on a 7-point scale) the impressions they made on others during that day on eight different dimensions (competence, civility, ethical, artistic, sympathetic, orderly, psychical attractiveness, and tolerant). A total (mean) *impression on others* score was calculated.

2.3. Statistical analyses

To test H1 and H2, we aggregated the daily social and well-being reports. In the mediation analyses, due to the large sample size, we focus on the ratio (i.e., the effect size) of the standardized indirect effect to the total effect, rather than on significance levels.

To test H3, we used multilevel regression analyses, as the data follow a hierarchical structure with days (Level 1) nested in individuals (Level 2). Multilevel analysis or hierarchical linear modeling (HLM) provides more accurate parameter estimates and significance tests than comparable ordinary least squares regression techniques by accounting for variance at each analysis level. In the present study, the intraclass correlations ranged between 0.32 and 0.54, indicating significant amounts of variance at both levels to justify multilevel analyses.

In each multilevel model, we included GFP main effects, daily experiences, and their cross-level interaction. The daily predictors were person-mean centered (Nezlek, 2001), therefore, a participant's coefficient reflects daily fluctuations from his/her average level. Models were fitted using the *nlme* package in R (R Core Team, 2016; Pinheiro, Bates,

DebRoy, Sarkar & R Core Team, 2016). Details on the multilevel procedure are in the Supplementary Materials.

3. Results

3.1. Descriptive statistics

The variables descriptives are presented in Table 1. Participants reported relatively few conflicts, on average 0.37 conflict per day. Conflicts and relationship quality, although related (*r* = −0.33), appeared to assess different aspects of interpersonal relationships.

3.2. Relations between the GFP and daily social experiences

GFP scores positively related to daily relationship quality and impressions on others, and negatively to the number of daily conflicts (Table 1). These results support H1a-H1c. Interestingly, the relations between the GFP and the daily indicators of social effectiveness were roughly equal in size or larger than those involving the Big Five and these outcomes.

3.3. Mediation Analyses

There were sizeable correlations between the GFP and daily averaged self-esteem and mood (see also, Musek, 2007). As the GFP related to the mediators and outcomes, mediation analyses (Table 2) were permissible.

Focusing on the direct/total effect ratio, the most important mediators were relationship quality and daily impressions. Daily impressions were the most important mediators of the GFP on the one hand, and self-esteem and PA on the other hand. For PA, about half of the total GFP effect was mediated by the daily impressions. Relationship quality was the most important mediator for NA. These

Table 2
Results from mediation analyses.

	Self-esteem						Positive affect						Negative affect					
	a	b	Indirect (a x b)	Direct c'	Total c	%	a	b	Indirect (a x b)	Direct c'	Total c	%	a	b	Indirect (a x b)	Direct c'	Total c	%
Interpersonal conflict	−0.07	−0.13	.01	.51	.52	2	−0.07	.07	.00	.43	.42	−1	−0.07	.26	−0.02	−0.34	−0.36	5
Interpersonal conflict (no/yes)	−0.08	−0.11	.01	.51	.52	2	−0.08	.07	−0.01	.43	.42	−1	−0.08	.29	−0.02	−0.34	−0.36	6
Relationship quality	.33	.30	.10	.42	.52	19	.33	.21	.07	.36	.42	17	.33	−0.31	−0.10	−0.26	−0.36	28
Impressions on others	.45	.36	.16	.36	.53	31	.45	.44	.20	.21	.40	49	.45	−0.17	−0.07	−0.31	−0.38	19

Note. All values represent standardized coefficients. All indirect effects were significantly different from zero (at α = 0.05).

Table 3
Results from multilevel regression analysis examining the interaction between the GFP and daily social behaviors on self-esteem, positive affect, and negative affect.

	Self-esteem				Positive affect				Negative affect			
	1	2	3	4	1	2	3	4	1	2	3	4
Intercept	3.89***	3.97***	3.89***	3.88***	2.87***	2.91***	2.87***	2.87***	1.82***	1.72***	1.82***	1.83***
GFP	.31***	.29***	.31***	.32***	.22***	.23***	.22***	.21***	−0.19***	−0.18***	−0.19***	−0.21***
1. Interpersonal conflict	−0.17***				−0.09***				.22***			
2. Interpersonal conflict (no/yes)		−0.21***				−0.10***				.28***		
3. Relationship quality			.33***				.27***				−0.28***	
4. Impressions on others				.48***				.46***				−0.27***
GFP x Interpersonal conflict	.01†				−0.01				.00			
GFP x Interpersonal conflict (no/yes)		.03**				−0.01				−0.02†		
GFP x Relationship quality			−0.05***				.00				.03**	
GFP x Impressions on others				−0.06***				.03**				.03***
% slope variance explained	0.10	3.13	4.37	4.04				2.06		.48	1.47	2.34
φ	.22***	.22***	.22***	.22***	.21***	.21***	.21***	.21***	.26***	.26***	.26***	.26***
r_{ij}^2	.40***	.41***	.38***	.33***	.36***	.36***	.34***	.29***	.27***	.27***	.26***	.27***
u_{0j}^2	.22***	.21***	.23***	.23***	.20***	.21***	.20***	.20***	.22***	.20***	.22***	.22***
u_{1j}^2	.03***	.03***	.06***	.06***	.01***	.01***	.03***	.03***	.03***	.04***	.04***	.04***

GFP = General Factor of Personality, φ = autocorrelation, r_{ij}^2 = within-person variance, u_{0j}^2 = between-person variance, u_{1j}^2 = random slope variance (see Supplemental Materials for more information).
Note. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$, Number of persons: 1219 (M1-M3), and 968 (M4). Number of observations (days): 23.518 (M1-M2), 23.491 (M3), and 19.996 (M4).

results support the predictions in H2b and H2c. The relation between the GFP, and self-esteem and mood did not appear to be substantively mediated by the number of conflicts. Thus, only limited support was found for H2a.

3.4. Moderation Analyses

The HLM-results are presented in Table 3. The hypothesized effects (H3a-H3c) were largely found for self-esteem and NA. Specifically, the cross-level interactions between the GFP and the various daily measures resulted in non-trivial decreases of random slope variance (between 0.10% and 4.37%, interpretable as *R2*-values). Taking the moderating effect of the GFP and NA as an example; the within-person *SD* of impressions was 0.60. Thus, having a bad day compared to an average day in terms of impressions (−1SD) results in a daily NA increase of about 0.13 and 0.19 for low-GFP and high-GFP individuals, respectively (Fig. 1A). These effects appear to be small, but should be considered against the within-person SDs of the outcomes (0.65, 61, and 0.55 for self-esteem, PA and NA, respectively).

At first sight, Fig. 1A may suggest a floor effect because, compared to low-GFP individuals, high-GFP individuals scored lower on NA and thus have less opportunity to move down the scale. However, this explanation is at odds with GFP moderation of the relation between conflict and both NA and self-esteem. For example, for high-GFP individuals, there is enough leeway for interpersonal conflicts to negatively affect one's daily self-esteem (Fig. 1B). Yet, as expected, the
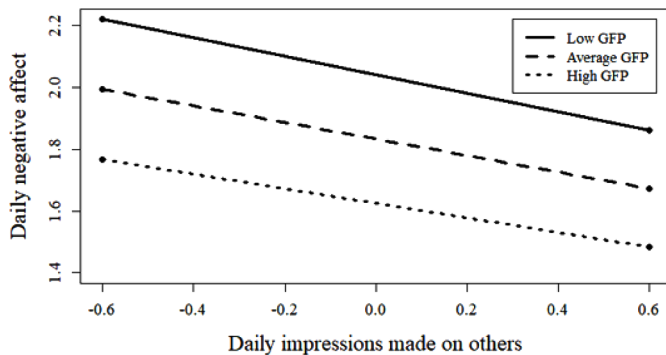
negative effect of interpersonal conflicts on daily self-esteem is stronger (i.e., steeper) for those with lower GFP scores.

None of the hypothesized moderations were found with positive affect. Interestingly, opposite to the hypothesis, the interaction between the GFP and daily impressions on PA was positive: a day with comparatively bad impressions resulted in a larger decrease of PA for high-GFP individuals. In conclusion, for daily self-esteem and NA, H3a through H3c were largely supported, while no support was found for daily PA (H3b).

4. Discussion

The present study showed that (1) GFP scores were related to daily social experiences and well-being/mood, (2) daily social experiences partly mediated the relation between the GFP and well-being/mood, and (3) the GFP related to how individuals react to daily social events. To the best of our knowledge, this is the first time that the social effectiveness hypothesis of the GFP is studied using daily reports (with an *N* of ≈ 1220).

This study may contribute to the literature in four ways. First, we found the GFP to be related to higher daily relationship quality and less conflicts. These outcomes can be viewed as indicators of social effectiveness (Denissen et al., 2008) and fit with previous findings showing that the GFP is related to positive social outcomes such as popularity (Van der Linden et al., 2010b), job performance and obtaining leadership positions (Pelt, van der Linden, Dunkel &, Born, 2017).
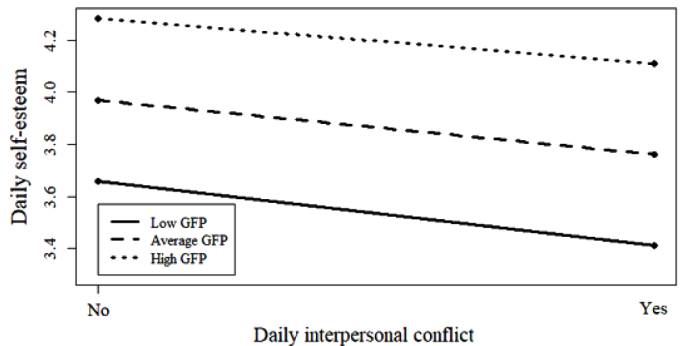
Fig. 1. Cross-level interaction between the General Factor of Personality (GFP) and daily impressions on daily negative affect (Fig. 1A) and daily interpersonal conflict on daily self-esteem (Fig. 1B).

Second, we showed how GFP scores were associated with leaving better daily impressions on others. Recent studies have confirmed that impression management is best seen as a stable, substantive trait related to self-control in social contexts (Uziel, 2010). This definition is similar to the substantive GFP interpretation. Accordingly, it can be argued that (successful) impression management may be inseparable from personality (cf. Danay & Ziegler, 2011).

A third contribution is our provision of a potentially relevant mechanism for the strong relationship between the GFP and subjective well-being (e.g., Musek, 2007). Because social relationships have been proposed to be "the greatest single cause" of well-being (Argyle, 2001), it may not come as a surprise that any social skills associated with the GFP would allow for maintaining better social relationships, in turn, resulting in higher levels of well-being.

Fourth, high-GFP (vs. low-GFP) individuals' daily mood was less strongly influenced by daily fluctuations in social interactions and events. This is in line with the GFP as an *adaptive* trait that not only reflects social aptness, but that also cushions the impact of adversities (see also, Hengartner et al., 2017).

Counter to our hypotheses, no moderating effects of the GFP were found on the relations between daily conflict/relationship quality and PA. One possible explanation is that the participants' PA-levels resided around the midpoint of the scale, and daily social experiences may not be salient enough to warrant a reaction at such levels. In contrast, average self-esteem scores were relatively high and NA scores relatively low; a deviation from such higher levels will perhaps trigger a more direct reaction (thus allowing for GFP moderation). At this point, however, this explanation is rather speculative and should be tested in the future.

Salience of a daily experience may also be responsible for the unexpected finding that fluctuations in daily impressions on others had *stronger* effects on the daily PA of high (vs. low) GFP individuals. By far the largest mediation effect was found for the GFP – daily impressions – PA link. Thus, as leaving a good impression on others may be especially important for PA, daily successes or failures in achieving this might to be more pleasing or disturbing, respectively, at higher GFP levels.

4.1. Limitations

The main limitation was the exclusive use of self-reports, introducing possible common method bias. However, diary data can be assumed to partly reduce the biases associated with self-reports (e.g., recall bias and social desirability). In addition, by using daily within-person fluctuations, the influence of common method variance is reduced (Beal, 2015). Furthermore, it is unlikely to find cross-level interactions when large amounts of common method variance are present (Lai, Li & Leung, 2013). Still, lower GFP scores may be associated with quicker interpretation of a given social situation as a conflict, or with selecting oneself into conflicts (e.g., Bolger & Schilling, 1991). Future studies should include other-reports to remedy such drawbacks.

Further, although a large community sample was used, the participants were relatively young, childless, and mostly women. Therefore, testing our results' generalizability in more heterogeneous samples would be desirable.

4.2. Concluding remarks

This study revealed how the GFP, as a presumed social effectiveness factor, translates to day-to-day social experiences. Using an extensive diary design, high-GFP individuals were found to experience fewer interpersonal conflicts, and were less negatively influenced by potentially disruptive social events. It is not difficult to imagine how the effects of being socially adaptive and knowing how to respond in social situations on a daily basis will accumulate and eventually would affect broader life outcomes such as job performance and better social relations.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.paid.2019.109738.

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