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Personality predicts temporal attention costs in the attentional blink paradigm

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Accuracy for a second target is reduced when it is presented within 500 msec of a first target. This phenomenon is called the *attentional blink* (AB). A diffused attentional state (via positive affect or an additional task) has been shown to reduce the AB, whereas a focused attentional state (via negative affect) has been shown to increase the AB, purportedly by influencing the amount of attentional investment and flexibility. In the present study, individual differences in personality traits related to positive affect, negative affect, and cognitive flexibility were used to predict individual differences in AB magnitude. As hypothesized, greater extraversion and openness predicted smaller ABs. Greater openness also predicted higher overall target accuracy. Greater neuroticism predicted larger ABs and lower overall target accuracy. Conscientiousness, associated with less cognitive flexibility, predicted lower overall target accuracy. Personality may modulate the AB by influencing overinvestment via dispositional tendencies toward more or less stringent or capable cognitive control.

When two to-be-attended targets are presented in a rapid serial visual presentation (RSVP) stream, accuracy for the second target (T2) is reduced when it is presented within 500 msec following a first target (T1), relative to longer T1–T2 separations (Raymond, Shapiro, & Arnell, 1992). This phenomenon has been labeled an *attentional blink* (AB; Raymond et al., 1992). The AB has been interpreted as reflecting limits on attention, such that attending to T1 prevents attention from being allocated to T2 until T1 processing has been completed (e.g., Chun & Potter, 1995) or the attentional system can be reset (e.g., Olivers & Meeter, 2008).

Despite its robust nature, the AB can be attenuated with some simple and surprising procedural changes. Olivers and Nieuwenhuis (2005, 2006) demonstrated that an additional task, such as thinking about holidays or a match-to-sample task, performed concurrently with the AB task resulted in smaller ABs. In a separate experiment, they found that inducing positive affect while performing the AB task also produced smaller ABs (Olivers & Nieuwenhuis, 2006). In their overinvestment hypothesis, Olivers and Nieuwenhuis (2006) proposed that both an additional task and positive affect diffuse attention, which results in smaller ABs. Diffusing attention, according to the overinvestment hypothesis, reduces the excess of attention given to T1 and the competitive strength of distractors, increasing the probability that T2 will be accurately reported, yielding smaller ABs.

Diffusion of attention has previously been linked to positive affect, and focus has been linked to negative affect (Ashby, Isen, & Turken, 1999). Although Olivers and Nieuwenhuis (2006) did not find effects of negative affect, Jefferies, Smilek, Eich, and Enns (2008) found effects with induced negative affect where high-arousal negative affect yielded the largest ABs, and low-arousal negative affect yielded the smallest ABs, relative to positive affective states.

Rokke, Arnell, Koch, and Andrews (2002) found that individuals with a high number of depressive symptoms had larger AB magnitudes than controls did, which was attributed to difficulty in disengaging attention from T1 (i.e., overinvestment in T1). Using an individual differences approach, MacLean, Arnell, and Busseri (in press) supported both predictions of the overinvestment hypothesis regarding affect. They found that trait-positive affect was negatively correlated with AB magnitude and that trait-negative affect was positively correlated with AB magnitude.

The constructs of positive and negative affect are linked conceptually with the personality traits extraversion and neuroticism (Carver, Sutton, & Scheier, 2000; Clark & Watson, 1999). It has been proposed that positive affect, extraversion, and approach motivation, taken together, represent one of two basic behavioral dispositions, whereas negative affect, neuroticism, and avoidance, taken together, represent the other (Elliot & Thrash, 2002). These affect and personality factors are reliably correlated with each other; positive affect is associated with greater extraversion, and negative affect is associated with greater neuroticism (see, e.g., Nemanick & Munz, 1997; Yik & Russell, 2001). There is evidence that personality influences both trait and state affect (Gross, Sutton, & Ketelaar, 1998), which suggests that personality traits may predict AB magnitude as well. Extraversion, asso-

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ciated with greater positive affect, could predict smaller AB magnitudes, and neuroticism, associated with greater negative affect, may predict larger AB magnitudes.

In addition to its relationship with positive affect, there is other evidence to suggest that extraversion could predict AB magnitude. It has been suggested that individual differences in extraversion evolve from differences in the functioning of dopaminergic systems (Depue & Collins, 1999). For example, extraversion was strongly correlated with changes in working memory (WM) performance using the *n*-back task, thought to be influenced by dopamine activity, following a dopamine agonist (Wacker, Chavanon, & Stemmler, 2006). Extraversion also correlated with reaction to a dopamine agonist, as measured by spontaneous eyeblink response (Depue, Luciana, Arbisi, Collins, & Leon, 1994). Dopaminergic activity has also been correlated with AB magnitude. Individuals with higher spontaneous eyeblink rates, indicative of greater dopaminergic activity, had smaller AB magnitudes (Colzato, Slagter, Spapé, & Hommel, 2008). That extraversion and the AB both appear to be modulated by dopaminergic activity provides an additional reason to expect that extraversion could predict smaller ABs.

There is evidence that the personality traits of openness and conscientiousness (Costa & McCrae, 1992b) are associated with the concepts of diffusion and focus discussed in Olivers and Nieuwenhuis's (2006) overinvestment hypothesis. Positive affect, which is associated with smaller ABs, has been shown to decrease perseveration costs (Dreisbach, 2006). Positive affect is thought to increase cognitive flexibility, leaving attention open to a diversity of stimuli (Ashby et al., 1999).

Conscientiousness was found to be negatively related to performance in a change-task paradigm, which suggests increased perseveration costs and less cognitive flexibility (Le Pine, Colquitt, & Erez, 2000), and individuals high in openness demonstrated the ability to adapt performance in the change-task paradigm, indicating greater cognitive flexibility. Cognitive flexibility is central to Olivers and Nieuwenhuis's (2006) concept of diffusion of attention. It is possible that conscientiousness, associated with less cognitive flexibility, might increase the overinvestment of attention and AB magnitudes, whereas openness, associated with greater cognitive flexibility, might reduce the overinvestment of attention and AB magnitudes.

Stable individual differences have been observed in the magnitude of the AB (McLaughlin, Shore, & Klein, 2001). Dispositional affect (MacLean et al., in press), WM operation span as measured by the OSPAN (Arnell, Stokes, MacLean, & Gicante, 2010; Colzato, Spapé, Pannebakker, & Hommel, 2007), and the ability to inhibit irrelevant distractor items both from inside the RSVP stream (Dux & Marois, 2008) and in a separate visual WM task (Arnell & Stubitz, in press) have been shown to predict AB magnitude. Overall, the results of these studies suggest that individual differences in cognitive control may underlie individual differences in the AB, at least in part. Personality may modulate individual differences in cognitive control (e.g., Lieberman, 2000).

Individual differences in personality may explain variability in the AB, possibly via state affect, cognitive control, and/or dopamine. On the basis of the evidence discussed above, we make the following hypotheses: Neuroticism and conscientiousness will correlate positively with AB magnitude, and extraversion and openness will correlate negatively with AB magnitude.

Given the relationship between personality and state affect (see, e.g., Yik & Russell, 2001) and between state affect and the AB (Jefferies et al., 2008; Olivers & Nieuwenhuis, 2006), there is the possibility that state affect could mediate the proposed relationship between personality traits and AB magnitude. It is also possible that personality and the AB are related independently of state effects. For example, personality and trait affect are related to cognitive control measures, such as performance monitoring (e.g., Luu, Collins, & Tucker, 2000; Pailing & Segalowitz, 2004). Stable individual differences in cognitive control could underlie individual differences in the AB without implicating transient state effects. To test these possibilities, we measure affective state and examine whether state affect mediates the relationship between personality and the AB.

METHOD

Participants

Twenty-nine undergraduate students at Brock University participated for either payment or course participation hours. All had normal or corrected-to-normal vision.

Personality Measure

The participants completed a 50-item scale measuring the five domains of the NEO Personality Inventory–Revised (NEO-PI-R; Costa & McCrae, 1992a) adopted from the International Personality Item Pool (Goldberg et al., 2006). Each trait—neuroticism, extraversion, openness, conscientiousness, and agreeableness—was assessed with 10 items. Five of the items were positively scored; the other 5 were negatively scored. The participants were asked to rate each item on a scale that ranged from 1 (*very inaccurate*) to 5 (*very accurate*) to indicate how accurately it described them. The negatively scored items were reversed, and the 10 scores for each trait were averaged.

State Affect Measure

The participants completed the Emotion Report Form (ERF; Fredrickson & Branigan, 2005), a 10-item scale consisting of 5 positive affect items and 5 negative affect items. They were asked to rate each item on a scale from 0 (*not at all*) to 8 (*very much*) to report the degree to which they felt those emotions at that time. The participants completed the ERF immediately before performing the AB task. State-positive affect and state-negative affect were calculated as the mean score of their 5 respective items.

AB Task

The AB task consisted of five blocks of 140 RSVP trials. Of the 700 total trials, 100 were no-target trials, and 600 were dual-target (T1 and T2) trials. On half of the dual-target trials, T2 was presented three items after T1 (lag 3), and, on the other half, T2 was presented at lag 8. T1 was always the sixth item in the stream. T1 was either a string of five repeated uppercase letters (e.g., BBBBB) chosen randomly from the letter set B, C, D, E, F, N, P, S, U, X, or Z, or, on 20% of the trials at each lag, a string of five repeated lowercase letters (e.g., bbbbb) chosen randomly from the same letter set. All trial types were presented randomly within each block.

Table 1
Means, Standard Deviations, and Correlations for RSVP Measures, Personality, and State Affect

Measures	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. AB magnitude	0.23	0.14									
2. T1 accuracy	88.31	11.19	−.08								
3. T2 accuracy	78.78	10.56	−.73*	.45*							
4. Neuroticism	2.09	0.49	.37	−.16	−.17						
5. Extraversion	3.75	0.65	−.48*	.05	.23	−.40*					
6. Openness	3.77	0.68	−.21	−.09	.40*	.34	−.08				
7. Conscientiousness	3.64	0.73	−.07	−.37*	−.08	−.39*	.18	.24			
8. Agreeableness	3.89	0.59	.05	−.20	−.20	−.34	.19	−.15	.45*		
9. State-positive affect	4.85	1.33	−.40*	.27	.58*	−.21	.09	.08	.20	.20	
10. State-negative affect	0.58	0.64	.34	.11	−.30	.60*	−.46*	−.01	−.47*	−.30	−.31

Note—*N* = 29. *$p < .05$.

Each trial began with a fixation cross (500 msec), followed by a foreperiod of 2 sec before the onset of the RSVP stream. The T1 probability manipulation, the distractor-only trials, and the foreperiod were included for the purposes of a separate study. The RSVP stream consisted of 18 alphanumeric stimuli with an SOA of 117 msec per item. T1 was presented in a white font on a gray background. T2 was one of 10 different color words (e.g., GREEN) and appeared in black uppercase letters. The distractor items consisted of noncolor, affectively neutral words that were also presented in black uppercase letters. At the end of each stream, the participants indicated whether the white letter string was in uppercase or lowercase letters and then reported which color word was presented as T2. The participants were told that some of the trials would contain no targets, and on these trials they should simply press the space bar to initiate the next trial. Stimulus presentation and participant responses were controlled using E-Prime software (Schneider, Eschman, & Zuccolotto, 2002). T1 and T2 accuracy were computed as the average performance collapsed across frequent and rare trials for each target. T2 performance was conditionalized on T1 performance.[1] AB magnitude was computed as the difference of average T2 accuracy at lag 8 and lag 3 (i.e., lag 8 − lag 3).

RESULTS

A paired-samples *t* test comparing T2 accuracy at lags 3 ($M = 66.45\%$) and 8 ($M = 89.10\%$) was significant [$t(28) = 8.65$, $p < .001$], indicating the presence of an AB. Table 1 shows the means, standard deviations, and correlations for the RSVP measures, personality traits, and state affect measures. Neuroticism was negatively correlated with extraversion and conscientiousness, as we expected from the factor structure underlying the NEO-PI-R (Costa & McCrae, 1992b). Conscientiousness was also positively correlated with agreeableness. As hypothesized, extraversion was significantly negatively correlated with AB magnitude. Although the correlation between neuroticism and AB magnitude was not significant ($p = .052$), it was in the hypothesized direction, suggesting that greater neuroticism might be associated with larger ABs. No other personality dimensions correlated with AB magnitude. Conscientiousness was significantly negatively correlated with T1 accuracy. Openness was significantly positively correlated with overall T2 accuracy. No other traits were correlated with T1 accuracy or with overall T2 accuracy.

A multiple regression analysis was also performed with neuroticism, extraversion, openness, and conscientiousness as simultaneous predictors of AB magnitude to examine the unique variability explained by each personality dimension and to remove any common variability that might have resulted from the use of the response scale (i.e., a participant's tendency to respond using only the low or high end of the scale). This regression was repeated with overall T2 accuracy as the criterion and then with T1 accuracy as the criterion. Agreeableness was not included in the multiple regressions because it was not hypothesized to relate to any RSVP measure and did not demonstrate any significant relationship with RSVP measures.[2]

Table 2 shows the results of each multiple regression analysis. The personality dimensions combined to explain a significant 44% of variability in AB magnitude ($R = .66$, $p < .05$), with extraversion, neuroticism, and openness all being significant unique predictors of AB magnitude.[3] Greater neuroticism predicted larger AB magnitudes. Greater extraversion and greater openness both predicted smaller AB magnitudes (see Figures 1A–1D). The combined personality dimensions fell just short of explaining a significant amount of overall variability in T1 accuracy ($R = .53$, $p = .09$). However, both conscientiousness and neuroticism explained significant unique

Table 2
Results of Multiple Regressions of AB Magnitude, T1 Accuracy, and T2 Accuracy, With Personality Dimensions Entered Simultaneously

	AB Magnitude			T1 Accuracy			T2 Accuracy		
Variable	*t*	*sr*	*β*	*t*	*sr*	*β*	*t*	*sr*	*β*
Neuroticism	2.45*	.37	.49	−2.07*	−.36	−.47	−2.62*	−.40	−.52
Extraversion	−2.25*	−.34	−.38	−0.11	−.02	−.02	1.00	.15	.17
Openness	−2.68*	−.41	−.48	1.04	.18	.21	3.97*	.60	.70
Conscientiousness	1.64	.25	.30	−2.90*	−.50	−.60	−2.62*	−.40	−.48

Note—*N* = 29. *sr*, semipartial correlation; *β*, standardized beta coefficient. *$p < .05$.

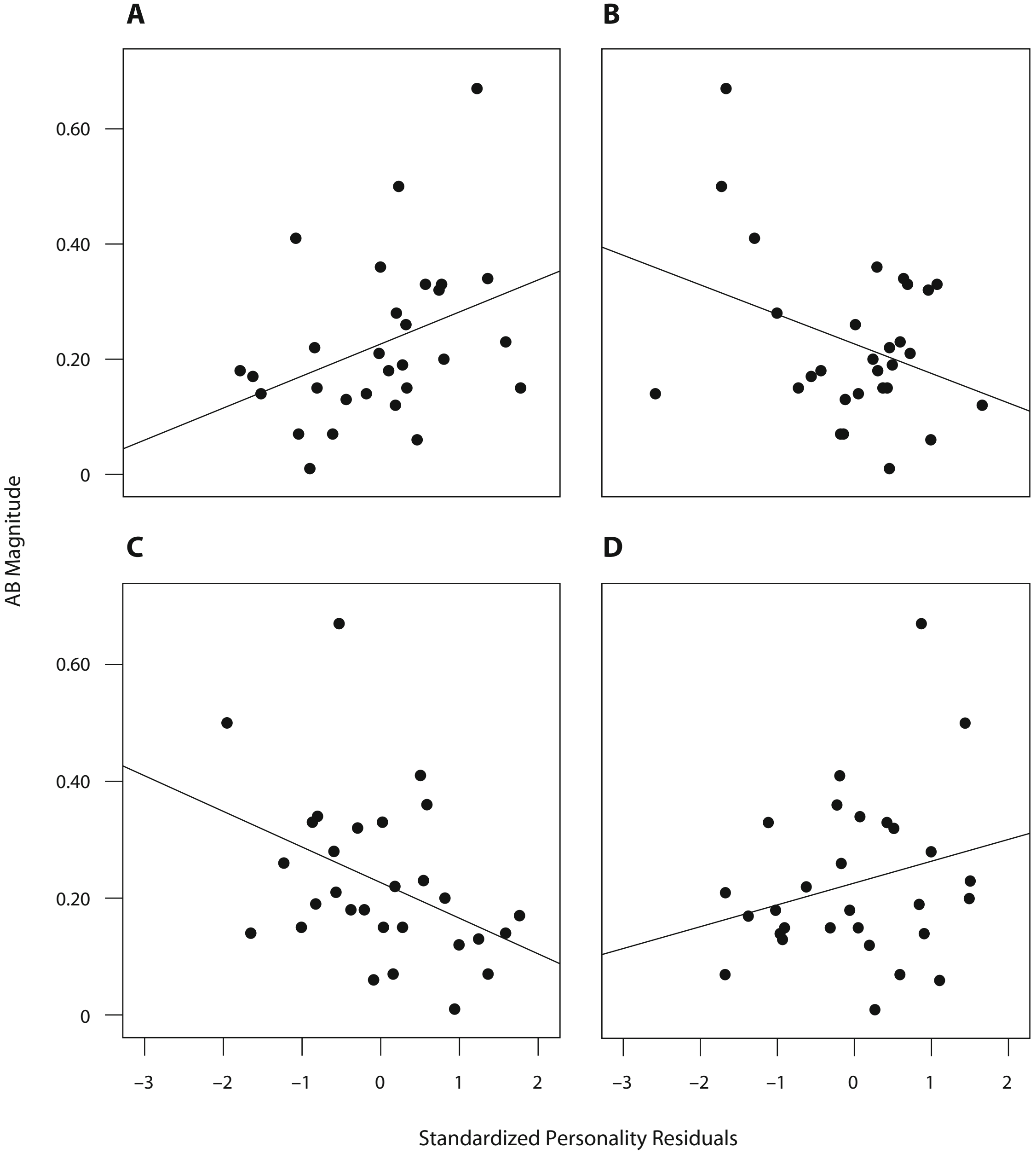

Figure 1. Scatterplots of AB magnitude with the standardized residuals (i.e., unique variability from the multiple regression) of (A) neuroticism, (B) extraversion, (C) openness, and (D) conscientiousness, including line of best fit for the linear relationship.

variability in T1 accuracy where higher conscientiousness and neuroticism were associated with lower T1 accuracy. The combined personality dimensions explained a significant 45% of variability in overall T2 accuracy ($R = .67$, $p < .05$). Neuroticism, conscientiousness, and openness were significant unique predictors of T2 accuracy. Higher levels of neuroticism and conscientiousness predicted lower T2 accuracy, and greater openness predicted higher T2 accuracy. Accuracy on distractor-only trials (i.e., the tendency to incorrectly report targets that were absent) was unrelated to any of the personality measures.

State Affect, Personality, and the AB

As expected, AB magnitude was significantly negatively correlated with state-positive affect. AB magnitude and state-negative affect were positively correlated, as expected, but the effect fell short of significance ($p = .07$). None of the personality traits were significantly correlated with state-positive affect. As expected, greater negative affect was associated with higher neuroticism, lower extraversion, and lower conscientiousness.

To determine whether state affect mediates the relationships between personality traits and AB magnitude,

Table 3
Results of Hierarchical Regression Predicting AB Magnitude, With Affective States Entered First and Personality Traits Entered Second

Variable	*t*	*sr*	*β*
	Step 1		
State-positive affect	−1.78	−.31	−.33
State-negative affect	1.29	.23	.24
	Step 2		
State-positive affect	−2.04	−.30	−.32
State-negative affect	−0.34	−.05	−.07
Neuroticism	2.11*	.31	.45
Extraversion	−2.35*	−.34	−.40
Openness	−2.55*	−.37	−.44
Conscientiousness	1.71	.25	.31

Note—$R^2 = .21^*$ for Step 1; $\Delta R^2 = .32^*$ for Step 2. $^*p < .05$.

a hierarchical regression was performed, predicting AB magnitude with the state affect measures entered on the first step and personality traits entered on the second step. As we show in Table 3, state affect did not mediate the relationships between personality and the AB. The state affect measures predicted a significant 21% ($R = .46$, $p < .05$) of variability in AB magnitude. The personality traits predicted an additional and significant 32% ($p < .05$) of variability in AB magnitude over and above state affect measures. Neuroticism, extraversion, and openness all remained significant unique predictors of AB magnitude over and above state affect, and conscientiousness approached significance ($p = .10$).

A second hierarchical regression analysis was performed to determine whether personality traits could mediate the relationship between state affect and AB magnitude. Personality traits were entered on the first step, and state affect was entered on the second. As is shown in Table 4, personality traits did mediate the relationship between state affect and AB magnitude. State affect did not significantly predict AB magnitude over and above personality ($\Delta R^2 = .09$, $p = .15$), although state positive affect approached significance ($p = .053$) as a unique predictor of AB magnitude.

DISCUSSION

To our knowledge, this study is the first to examine whether individual differences in the personality traits of extraversion, neuroticism, openness to experience, and conscientiousness can predict AB magnitude. When entered simultaneously in a multiple regression analysis, the personality variables of neuroticism, extraversion, and openness were all significant unique predictors of AB magnitude in the expected directions. Despite the limited sample size used here, the personality measures of extraversion, neuroticism, openness, and conscientiousness predicted a significant and large amount (44%) of variability in AB magnitude. As hypothesized, extraversion, which has been linked to positive affect and dopaminergic activity, was negatively related to AB magnitude, as was openness to experience, which is associated with greater cognitive flexibility. In contrast, neuroticism, which is associated with greater negative affect, was positively related to AB magnitude. These results provide support for the overinvestment hypothesis of Olivers and Nieuwenhuis (2005, 2006) and additional evidence that studies involving individual differences can inform us as to the nature of the AB.

Previous studies have shown relationships between trait affect and the AB (MacLean et al., in press; Rokke et al., 2002) and between induced state affect and the AB (Jefferies et al., 2008; Olivers & Nieuwenhuis, 2006). The present study extends these findings by showing that individual differences in naturally occurring (as opposed to experimentally induced) state affect can also predict individual differences in the AB. Interestingly, the relationship between personality and AB magnitude was not explained by affective state. When entered into a hierarchical regression, extraversion, neuroticism, and openness were all significant unique predictors of AB magnitude over and above positive and negative affective state, so the observed relationship between personality and the AB cannot be attributed to affective state. This is not to say that personality must have direct effects on the AB and that no variable could mediate this relationship (see the discussion of individual differences in cognitive control below). However, these results do demonstrate that the relationships reported here between personality traits and the AB are not simply artifacts of the relationship between state affect and the AB.

Recent models of the AB have highlighted the importance of cognitive control. For example, in the temporary loss of control model (Di Lollo, Kawahara, Ghorashi, & Enns, 2005), the AB results from a loss of top-down control over the attentional filter during T1 consolidation. In the threaded cognition model (Taatgen, Juvina, Schipper, Borst, & Martens, 2009), the AB is said to be modulated by the cognitive control exerted over distractor processing. In the boost and bounce theory (Olivers & Meeter, 2008), the AB is induced by the inhibitory mechanism of a gate controlling access to WM. Personality may modulate the AB by influencing overinvestment via dispositional tendencies toward more or less stringent or capable cog-

Table 4
Results of Hierarchical Regression Predicting AB Magnitude, With Personality Traits Entered First and Affective States Entered Second

Variable	*t*	*sr*	*β*
	Step 1		
Neuroticism	2.44*	.37	.49
Extraversion	−2.25*	−.34	−.38
Openness	−2.68*	−.41	−.48
Conscientiousness	1.64	.25	.30
	Step 2		
Neuroticism	2.11*	.31	.45
Extraversion	−2.35*	−.34	−.40
Openness	−2.55*	−.37	−.44
Conscientiousness	1.71	.25	.31
State-positive affect	−2.04	−.30	−.32
State-negative affect	−0.34	−.05	−.07

Note—$R^2 = .44^*$ for Step 1; $\Delta R^2 = .09$ for Step 2. $^*p < .05$.

nitive control. This hypothesis is consistent with previous findings showing that nonblinkers (individuals with no AB) show a larger, earlier P3 to T1, relative to individuals with a typical AB, and less activation on distractor-only trials. Therefore, nonblinkers showed a larger difference in neural activation between targets and distractors than that shown by blinkers (Martens, Munneke, Smid, & Johnson, 2006). This hypothesis is also consistent with findings that individual differences in executive control of WM predict AB magnitude, but that WM capacity measures do not (Arnell et al., 2010; Arnell & Stubitz, in press; Colzato et al., 2007), and with findings that greater processing of irrelevant distractors both inside (Dux & Marois, 2008) and outside the RSVP stream (Arnell & Stubitz, in press; Martens & Valchev, 2009) is associated with larger ABs.

Level of extraversion has been associated with executive control of WM performance. Extraverts performed better on the Sternberg memory task than did introverts (Lieberman, 2000). Extraversion correlated positively with performance on the 2- and 3-back conditions of the *n*-back task, which has high executive control demands. Openness is also associated with flexible cognitive control (Le Pine et al., 2000), as we discussed above. Thus, individuals with high openness and extraversion may be able to exert effective cognitive control during RSVP, prioritizing targets and efficiently minimizing the impact of distractors.

In contrast, individuals with high neuroticism may exert less efficient cognitive control during RSVP: Distractors may be more effective competitors, derailing control of attentional filters (e.g., Di Lollo et al., 2005) and/or requiring an overexertion of cognitive control (e.g., Taatgen et al., 2009). Following from the overinvestment hypothesis (Olivers & Nieuwenhuis, 2006), it is also possible that neuroticism is associated with greater investment of attentional resources, which would result in larger ABs, whereas extraversion and openness lead to a more carefree style that results in less investment more generally and smaller ABs.

The multiple regressions predicting T1 and T2 accuracy using personality dimensions were also informative. Greater conscientiousness and neuroticism were significant unique predictors of both lower T1 and T2 accuracy, and greater openness predicted higher T2 accuracy. It is interesting to note that the personality dimensions that seem to best reflect anxiety or concern with good task performance (conscientiousness and neuroticism) were actually associated with *reduced* target accuracy. Concern or anxiety with their task performance may lead individuals who are high in conscientiousness and/or neuroticism to focus excessively. This might lead individuals to overinvest attentional resources on distractors, allowing the distractors to interfere with target processing.

In conclusion, the results of this study show that personality traits associated with individual differences in affect, cognitive control, and dopamine predict individual differences in AB magnitude and that the relationship between personality and the AB merits further investigation. This work provides a starting point for future studies investigating the influence of personality traits, affective states, cognitive control, and dopamine, and how these might work together to explain individual difference in the AB. Whereas many traditional models of the AB stress fundamental limitations on information processing (e.g., Chun & Potter, 1995), results from individual differences studies (such as this one) support models emphasizing executive control of attention and WM, where participants' affect and personality and task conditions can influence their temporal search style and their resultant AB.

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REFERENCES

Arnell, K. M., Stokes, K. A., MacLean, M. H., & Gicante, C. (2010). Executive control processes of working memory predict attentional blink magnitude over and above storage capacity. *Psychological Research*, **74**, 1-11.

Arnell, K. M., & Stubitz, S. M. (in press). Attentional blink magnitude is predicted by the ability to keep irrelevant material out of working memory. *Psychological Research*.

Ashby, F. G., Isen, A. M., & Turken, A. U. (1999). A neuropsychological theory of positive affect and its influence on cognition. *Psychological Review*, **106**, 529-550.

Carver, C. S., Sutton, S. K., & Scheier, M. F. (2000). Action, emotion, and personality: Emerging conceptual integration. *Personality & Social Psychology Bulletin*, **26**, 741-751.

Chun, M. M., & Potter, M. C. (1995). A two-stage model for multiple target detection in rapid serial visual presentation. *Journal of Experimental Psychology: Human Perception & Performance*, **21**, 109-127.

Clark, L. A., & Watson, D. (1999). Temperament: A new paradigm for trait psychology. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 399-423). New York: Guilford.

Colzato, L. S., Slagter, H. A., Spapé, M. M. A., & Hommel, B. (2008). Blinks of the eye predict blinks of the mind. *Neuropsychologia*, **46**, 3179-3183.

Colzato, L. S., Spapé, M. M. A., Pannebakker, M. M., & Hommel, B. (2007). Working memory and the attentional blink: Blink size is predicted by individual differences in operation span. *Psychonomic Bulletin & Review*, **14**, 1051-1057.

Costa, P. T., Jr., & McCrae, R. R. (1992a). Four ways five factors are basic. *Personality & Individual Differences*, **13**, 653-665.

Costa, P. T., Jr., & McCrae, R. R. (1992b). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Depue, R. A., & Collins, P. F. (1999). Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. *Behavioral & Brain Sciences*, **22**, 491-569.

Depue, R. A., Luciana, M., Arbisi, P., Collins, P. [F.], & Leon, A. (1994). Dopamine and the structure of personality: Relation of agonist-induced dopamine activity to positive emotionality. *Journal of Personality & Social Psychology*, **67**, 485-498.

Di Lollo, V., Kawahara, J.-I., Ghorashi, S. M., & Enns, J. T. (2005). The attentional blink: Resource depletion or temporary loss of control? *Psychological Research*, **69**, 191-200.

Dreisbach, G. (2006). How positive affect modulates cognitive control: The costs and benefits of reduced maintenance capability. *Brain & Cognition*, **60**, 11-19.

Dux, P. E., & Marois, R. (2008). Distractor inhibition predicts individual differences in the attentional blink. *PLoS ONE*, **3**, e3330.

Elliot, A. J., & Thrash, T. M. (2002). Approach–avoidance motivation in personality: Approach and avoidance temperaments and goals. *Journal of Personality & Social Psychology*, **82**, 804-818.

Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought–action repertoires. *Cognition & Emotion*, **19**, 313-332.

Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. G. (2006). The International Personality Item Pool and the future of public-domain personality measures. *Journal of Research in Personality*, **40**, 84-96.

Gross, J. J., Sutton, S. K., & Ketelaar, T. (1998). Relations between affect and personality: Support for the affect-level and affective-reactivity views. *Personality & Social Psychology Bulletin*, **24**, 279-288.

Jefferies, L. N., Smilek, D., Eich, E., & Enns, J. T. (2008). Emotional valence and arousal interact in attentional control. *Psychological Science*, **19**, 290-295.

Le Pine, J. A., Colquitt, J. A., & Erez, A. (2000). Adaptability to changing task contexts: Effects of general cognitive ability, conscientiousness, and openness to experience. *Personnel Psychology*, **53**, 563-593.

Lieberman, M. D. (2000). Introversion and working memory: Central executive differences. *Personality & Individual Differences*, **28**, 479-486.

Luu, P., Collins, P., & Tucker, D. M. (2000). Mood, personality, and self-monitoring: Negative affect and emotionality in relation to frontal lobe mechanisms of error monitoring. *Journal of Experimental Psychology: General*, **129**, 43-60.

MacLean, M. H., Arnell, K. M., & Busseri, M. A. (in press). Dispositional affect predicts temporal attention costs in the attentional blink paradigm. *Cognition & Emotion*.

Martens, S., Munneke, J., Smid, H., & Johnson, A. (2006). Quick minds don't blink: Electrophysiological correlates of individual differences in attentional selection. *Journal of Cognitive Neuroscience*, **18**, 1423-1438.

Martens, S., & Valchev, N. (2009). Individual differences in the attentional blink: The important role of irrelevant information. *Experimental Psychology*, **56**, 18-26.

McLaughlin, E. N., Shore, D. I., & Klein, R. M. (2001). The attentional blink is immune to masking-induced data limits. *Quarterly Journal of Experimental Psychology*, **54A**, 169-196.

Nemanick, R. C., Jr., & Munz, D. C. (1997). Extraversion and neuroticism, trait mood, and state affect: A hierarchical relationship? *Journal of Social Behavior & Personality*, **12**, 1079-1092.

Olivers, C. N. L., & Meeter, M. (2008). A boost and bounce theory of temporal attention. *Psychological Review*, **115**, 836-863.

Olivers, C. N. L., & Nieuwenhuis, S. (2005). The beneficial effect of concurrent task-irrelevant mental activity on temporal attention. *Psychological Science*, **16**, 265-269.

Olivers, C. N. L., & Nieuwenhuis, S. (2006). The beneficial effects of additional task load, positive affect, and instruction on the attentional blink. *Journal of Experimental Psychology: Human Perception & Performance*, **32**, 364-379.

Pailing, P. E., & Segalowitz, S. J. (2004). The error-related negativity as a state and trait measure: Motivation, personality, and ERPs in response to errors. *Psychophysiology*, **41**, 84-95.

Raymond, J. E., Shapiro, K. L., & Arnell, K. M. (1992). Temporary suppression of visual processing in an RSVP task: An attentional blink? *Journal of Experimental Psychology: Human Perception & Performance*, **18**, 849-860.

Rokke, P. D., Arnell, K. M., Koch, M. D., & Andrews, J. T. (2002). Dual-task attention deficits in dysphoric mood. *Journal of Abnormal Psychology*, **111**, 370-379.

Schneider, W., Eschman, A., & Zuccolotto, A. (2002). *E-Prime user's guide*. Pittsburgh, PA: Psychology Software Tools.

Taatgen, N. A., Juvina, I., Schipper, M., Borst, J. P., & Martens, S. (2009). Too much control can hurt: A threaded cognition model of the attentional blink. *Cognitive Psychology*, **59**, 1-29.

Wacker, J., Chavanon, M.-L., & Stemmler, G. (2006). Investigating the dopaminergic basis of extraversion in humans: A multilevel approach. *Journal of Personality & Social Psychology*, **91**, 171-187.

Yik, M. S. M., & Russell, J. A. (2001). Predicting the big two of affect from the big five of personality. *Journal of Research in Personality*, **35**, 247-277.

NOTES

1. The pattern of results was the same for all analyses when T2 accuracy was not conditionalized on T1 correct.

2. The pattern of results was the same for all multiple regressions when agreeableness was included as a simultaneous predictor.

3. Results of this multiple regression analysis were the same when variability in lag 8 accuracy was accounted for on a previous step. This indicates that the relative accuracy impairment at the short lag is related to personality, not differences in long lag (baseline) T2 accuracy.

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