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Trait mindfulness and work–family balance among working parents: The mediating effects of vitality and sleep quality

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ABSTRACT

The present study investigates the relationship between trait mindfulness and work–family balance among a sample of working parents. Sleep quality and vitality are tested as mediators of this relationship. Results indicate that those with greater mindfulness report greater work–family balance, better sleep quality, and greater vitality. As expected, the relationship between mindfulness and work–family balance was mediated by sleep quality and vitality. Results support the usefulness of further examination of the benefits of mindfulness in the work–family context.

> "Compared to what we ought to be, we are only half awake."
>
> —William James (1911/1924)

The concept of mindfulness is centuries old. Originally stemming from Buddhist tradition, it has only more recently come into prominence within Western society (Kabat-Zinn, 1990). Mindfulness has been defined as, "intentionally paying attention to present-moment experience (physical sensations, perceptions, affective states, thoughts, and imagery) in a nonjudgmental way, thereby cultivating a stable and nonreactive awareness" (Carmody, Reed, Kristeller, & Merriam, 2008 p. 394). Mindfulness is a unique state of consciousness from that of typical cognitive processing because a person allows sensory input and simply notices it rather than comparing, evaluating, or ruminating about it (Brown, Ryan, & Creswell, 2007). The mindfulness term has been used to refer to a variety of related constructs and practices. Following the lead of Glomb, Duffy, Bono, and Yang (2011) we use the term *mindfulness treatment* to refer to mindfulness-based therapeutic programs (e.g., MSBR) and *trait mindfulness* to refer to dispositional individual differences in mindfulness.

To date, much of the research regarding mindfulness has focused on mindfulness-based treatment interventions (e.g., Brown et al., 2007). Research shows that mindfulness treatment influences the immune system, stress hormones and health behaviors in salutary ways (Greeson, 2009). A more recent line of research has investigated mindfulness as a psychological state. Although mindfulness may vary from moment to moment within a person, there is considerable evidence of individual differences in mindfulness, suggesting that it is a state-level construct that can also be assessed at the trait level (Brown, Kasser, Ryan, Linley, & Orzech, 2009; Dane, 2011; Ryan & Deci, 2008). Trait mindfulness has been negatively associated with psychological distress, rumination, and social anxiety while positively correlated with clarity of emotional states, mood repair, and relationship satisfaction (e.g.,

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Carmody et al., 2008; Chambers, Lo, & Allen, 2008; Dekeyser, Raes, Leijssen, Leysen, & Dewulf, 2008). Mindfulness-based treatment interventions have been shown to improve mean scores in reports of trait mindfulness therefore demonstrating that mindfulness is amenable to change through training (Carmody et al., 2008; Chambers et al., 2008).

Perhaps due to mounting evidence documenting the positive effects of mindfulness on a wide variety of outcomes in other disciplines, the study of mindfulness is beginning to garner attention among industrial–organizational psychology/organizational behavior scholars (Dane, 2011; Glomb et al., 2011). Both Dane and Glomb et al. provide a thorough review of mindfulness as well as an introduction to the potential value of examining mindfulness and its contributions to work-related outcomes such as task performance. The purpose of the current study is to extend both the study of mindfulness and that of work–family balance. Specifically, we test the potential benefits of trait mindfulness among a sample of employed parents within a mediated framework. The outcomes we investigate are, work–family balance, sleep quality, and vitality. We propose that the latter two variables serve as mediating mechanisms by which trait mindfulness relates to work–family balance.

Our study makes several unique contributions to the literature. First, as mentioned earlier, mindfulness can be trained and therefore become a part of an individual's life, incorporated into daily chores, activities, and role performance (Dane, 2011; Kostanski & Hassed, 2008). By investigating an individual difference variable that is amenable to training and change, we bring to light a new tool that may help working parents achieve good health and work–family balance. Second, the work–family literature has been dominated by research that has focused on work–family conflict or more recently on work–family enrichment (see Hammer & Zimmerman, 2011 for a review). The construct of work–family balance has emerged as a unique and useful addition to the work–family literature (Greenhaus & Allen, 2010). We contribute to this growing focus of research inquiry. Third, it has been suggested that parenting may be the most physically and mentally demanding role that individuals encounter during the lifespan (Janisse, Barnett, & Nies, 2009). By focusing on working parents, we address a population that is at high risk for energy drain and poor sleep quality. Fourth, by investigating vitality and sleep quality, we incorporate two mediating mechanisms that have received limited attention within the work–family literature.

Trait mindfulness and work–family balance

In recent years researchers have developed theory with regard to integrative rather than causal relationships between work and family that feature the construct of work–family balance (e.g., Greenhaus & Allen, 2010; Greenhaus, Collins, & Shaw, 2003; Grzywacz & Carlson, 2007; Valcour, 2007). Although varying uses and definitions of the work–family balance term exist, we define work–family balance as an overall appraisal regarding one's effectiveness and satisfaction with work and family life (Greenhaus & Allen, 2010). Unique from constructs such as work–family conflict and work–family enrichment, balance is not a linking mechanism between work and family because it does not specify how conditions or experiences in one role are causally related to conditions or experiences in the other role (Greenhaus et al., 2003). Rather, balance represents an overall interrole phenomenon. Several studies provide psychometric evidence that supports viewing conflict, enrichment, and balance as three distinct constructs (Allen, Greenhaus, & Edwards, 2010; Carlson, Grzywacz, & Zivnuska, 2009).

As a relatively new construct in the work–family literature, there has been limited research investigating the predictors and outcomes of balance. Time spent in various activities is one predictor. Specifically, longer work hours have been associated with less satisfaction with work–family balance and more quality time spent with children positively associated with perceived balance (Milkie, Kendig, Nomaguchi, & Denny, 2010; Valcour, 2007). Another predictor is job characteristics. Specifically, job complexity and control over work time have been positively associated with satisfaction with work–family balance (Valcour, 2007). Outcomes associated with work–family balance include job satisfaction, organizational commitment, family satisfaction, family functioning, and life satisfaction (Allen et al., 2010; Carlson, Grzywacz, & Zivnuska, 2009).

Based on self-regulation and role balance theories, there are several reasons to hypothesize that trait mindfulness relates to work–family balance. In their theory of role balance, Marks and MacDermid (1996) note that positive role balance is the tendency to approach every typical role and role partner with an attitude of attentiveness and care. The present moment alertness that is a part of mindfulness should enable individuals to fully immerse themselves with care and attentiveness while engaged in each role. This practice should facilitate perceived balance across roles.

Mindfulness has been associated with increased concentrative capacity and attentional control (Brown et al., 2007). For example, fMRI research has shown that self-reports of trait mindfulness relate to amygdala activation in ways that suggest more mindful individuals have greater affect regulation ability (Creswell, Way, Eisenberger, & Lieberman, 2007). As described earlier, mindfulness is defined as a present-centered, clear, non-judging, non-reactive and receptive form of awareness (Brown et al., 2007; Kabat-Zinn, 1990). Shapiro, Carlson, Astin, and Freeman (2006) suggest that by consciously bringing awareness and acceptance to present moment experiences, individuals are enabled to use a wider and more adaptive range of coping skills. Through attending to information contained in the present and creating space between emotions and reactions to them, clarity and self-regulated functioning are improved.

As noted by Marks and MacDermid (1996), the habit of bringing full attentiveness to each role helps to dissipate the perceived problem of role management, facilitating effective personal resource allocation. Moreover, with focused attention on the role at hand, individuals may more perform effectively (Dane, 2011). The quality of the experience in each role is likely to be enhanced, facilitating overall perceptions of role balance. Thus, we propose that individuals more predisposed to mindfulness will be more likely to report work–family balance.

Hypothesis 1. There is a positive relationship between trait mindfulness and work–family balance.

Mediating mechanisms

While we have proposed a direct link between trait mindfulness and work–family balance, two more proximal outcomes to mindfulness may be enhanced sleep and increased vitality. These two variables may help explain the process by which trait mindfulness relates to work–family balance.

Sleep quality

Insufficient sleep has been identified as a public health epidemic (Centers for Disease Control and Prevention, Epidemiology Program Office [CDC], 2011). Recent CDC research estimates based on data from 12 states in 2009 indicate that more than 35% of Americans are chronically sleep deprived. Accordingly, the U.S. Department of Health and Human Services' Healthy People (2020) includes improved sleep health as a key goal.

A growing body of research has linked trait mindfulness and sleep quality (e.g., Howell, Digdon, & Buro, 2010; Howell, Digdon, Buro, & Sheptycki, 2008; Roberts & Danoff-Burg, 2010). As noted by Howell et al. (2008), mindfulness is thought to promote well-being both directly through enriching and clarifying ongoing experience and indirectly by enhancing the healthy self-regulation of behavior (Brown & Ryan, 2003; Brown et al., 2007; Ryan & Deci, 2008). These processes may lessen the pre-sleep preoccupations and ruminations that are associated with insomnia.

The importance of sleep to employee health and well-being has been well documented (e.g., Steptoe, O'Donnell, Marmot, & Wardle, 2008). Sleep loss and sleep-related disorders contribute to nearly every key indicator of public health including mortality, morbidity, performance, accidents and injuries, and healthcare utilization (Colten & Altevogt, 2006). Moreover, sleep loss and untreated sleep disorders impact basic patterns of behavior that in turn can have a negative effect on family health and interpersonal relationships (Colten & Altevogt, 2006). Working parents may be particularly vulnerable to sleep disruptions (Medina, Lederhos, & Lillis, 2009; National Sleep Foundation, 2007). Poor sleep contributes to an individual's allostatic load (McEwen, 2006). The restorative effects of sound sleep should facilitate work–family balance. Thus, we predict sleep quality helps explain the relationship between mindfulness and work–family balance.

Hypothesis 2. Sleep quality mediates the relationship between trait mindfulness and work–family balance.

Vitality

Vitality refers to the conscious experience of feeling alive and alert (Bostic, Rubio, & Hood, 2000; Ryan & Frederick, 1997). It has been described as an energy that emanates from the self and is characterized by the relaxed possession of liveliness (Nix, Ryan, Manly, & Deci, 1999). Vitality has been found to be unique from, but positively associated with, other affective indicators of well-being such as happiness (Nix et al., 1999). Previous research has found vitality to be positively associated with self-esteem and satisfaction with life, and negatively associated with depression, negative affect, and anxiety (Ryan & Frederick, 1997).

In contrast to self-controlled regulation, which has been found to deplete energy (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998), the mindful regulation of behavior appears to be energizing (Brown & Ryan, 2003). In addition, as previously noted, mindfulness enhances the clarity and vividness of current experiences (Brown & Ryan, 2003; Brown et al., 2007). Mindfulness-based treatment has been shown to substantially increase pre- and post-training daily energy levels (Smith et al., 2008) and trait mindfulness has been associated with vitality (Brown & Ryan, 2003). As an energy resource, vitality should positively relate to work–family balance. Thus, we predict that vitality helps explain the relationship between mindfulness and work–family balance.

Hypothesis 3. Vitality mediates the relationship between trait mindfulness and work–family balance.

Method

Participants

The sample consisted of 131 alumni of a southeastern university. To be included in the study, participants had to work at least 20 h a week and have at least one child living at home. The majority of the participants were female (n = 81). The ethnicity of the participants was as follows: Caucasian (n = 113), African-American (n = 6), Asian (n = 1), Hispanic (n = 6), other (n = 2), and one who did not report. A total of 115 of the participants were married, 7 were living with their partner, and 8 were single. Average age was 42.18 (*SD* = 6.99). A total of 100 participants worked 40 or more hours a week, 21 worked 30–39 h a week, and 10 worked 20–29 h a week. Participants were invited to complete an online survey via email. Because of the nature of the data collection (e.g. we do not know how many emails were actually read), the exact response rate is uncertain, but is estimated at 15.1%. A total of 1794 emails were sent to a random group of alumni that did not bounce back. Of those, 271 responded. Of the 271 respondents, a total of 131 met the eligibility criteria.

Measures

Mindfulness

Mindfulness was measured with the 15-item Mindfulness Attention Awareness Scale (MAAS) (Brown & Ryan, 2003) (e.g., "I could be experiencing some emotion and not be conscious of it until sometime later."; "It seems I am 'running on automatic' without much awareness of what I am doing." [both reverse coded so that higher scores reflected higher levels of mindfulness]). Responses were based on a 6-point rating scale that ranged from "almost never" to "almost always." Alpha = 87. Brown and Ryan presented considerable evidence to support the validity of the MAAS. Scores on the MAAS have been positively associated with internal state awareness (.17–.23), clarity (.45–.50), and attention (.13–.19). Additionally, as reported by Baer, Smith, Hopkins, Krietemeyer, and Toney (2006), scores on the MAAS relate to other measures of mindfulness: Freiburg Mindfulness Inventory (.31), Kentucky Inventory of Mindfulness Skills (.51), Revised Cognitive and Affective Mindfulness Scale (.51), and the Southampton Mindfulness Questionnaire (.38).

Work–family balance perceptions

Work–family balance was measured with a 5-item scale developed by Allen et al. (2010) (e.g., "I am able to balance the demands of my work and the demands of my family,"; "I experience a high level of work–family balance."; "I am satisfied with the balance I have achieved between my work life and my family life."). Responses were based on a 5-point rating scale that ranged from "strongly disagree" to "strongly agree." Alpha = .88. Allen et al. presented evidence to support that their measure of work–family balance is distinct from that of work–family conflict.

Sleep quality

Sleep quality during the past month was assessed with seven items from the Pittsburgh Sleep Quality Index (PSQI) (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) (e.g., "During the past month, how many hours of sleep did you get each night."). Responses were summed. Total scores can range from 0 to 12 with higher scores indicating *less* sleep quality. This is a formative measure, therefore internal consistency is not applicable. Buysse et al. provided validity evidence indicating that the PSQI has the ability to discriminate "good" from "poor" sleepers.

Vitality

Vitality was measured with a 6-item scale developed by Ryan and Frederick (1997) and modified by Bostic et al. (2000) (e.g., "I feel alive and vital."). Responses were made on a 7-point rating scale that ranged from "not true at all" to "very true." Alpha = .90. Bostic et al. reported internal reliability coefficients of .80 and .89. Based on factor analyses, they also provided support for the unidimensionality of the measure.

Control variables

To help control for work and family demands we included total work hours and marital status. Work hours was based on an ordinal scale with five response options: 1 = under 10, 2 = 10–19, 20–29, 30–39, 40 or more hours a week. Marital status was dummy coded such that single = 0 and married/living with partner = 1. As is common in work–family studies, we also controlled for gender (male = 1, female = 2).

Results

Means, standard deviations, and intercorrelations among the study variables are reported in Table 1. Hypotheses were first tested with hierarchical multiple regression (see Table 2). Work hours, marital status, and gender were entered at Step 1 of the equation and trait mindfulness was added at Step 2. The mediator variables were entered at Step 3.

In support of Hypothesis 1, at Step 2 of the regression equation, mindfulness explained a significant increment in the variance associated with work–family balance ($R^2\Delta = .06$, $p = .00$) beyond that of the control variables. Specifically, individuals higher in trait mindfulness also reported greater work–family balance. In support of Hypotheses 2 and 3, based on Baron and Kenny (1986) criteria, sleep quality and vitality both mediated the relationship between mindfulness and work–family balance. After entering the mediators into the regression equation, the relationship between mindfulness and work–family balance became insignificant ($\beta = .04$, ns). Both sleep quality ($\beta = -.28$, $p < .01$) and vitality ($\beta = .21$, $p < .05$) were uniquely associated with work–family balance. Specifically, individuals with poorer sleep quality reported less work–family balance, while those with greater vitality reported more work–family balance.

To further test the mediation effects, we performed a bootstrap analysis using the multiple mediation macro developed by Preacher and Hayes (2008). Product coefficients with 95% confidence intervals that do not include zero indicate support for mediation. The results are shown in Table 3. Results indicate a significant total indirect effect. Of the two proposed mediators, only sleep quality had a significant independent indirect effect.

Table 1
Means, standard deviations, and intercorrelations.

		1	2	3	4	5	6	7
1	Trait mindfulness	–						
2	Work–family balance	.20*	–					
3	Vitality	.43**	.43**	–				
4	Sleep quality	−.36**	−.40**	−.50**	–			
5	Work hours	.14	−.23*	−.10	.15	–		
6	Marital status	−.02	.08	.05	.09	−.08	–	
7	Sex	−.28**	−.09	−.12	−.03	−.25**	−.14	–
Mean		4.43	3.54	4.44	3.90	4.69	NA	NA
Standard deviation		.79	1.00	1.20	1.96	.61	NA	NA

Higher sleep quality scores indicate poor sleep.
* p<.05.
** p<.01.

Discussion

The aim of this study was to investigate the notion that trait mindfulness relates to work–family balance within a mediated framework. We proposed that mindfulness could be a particularly useful predictor to examine within the work–family literature given that it is amenable to training and change. The results generally support our hypotheses. Several key findings emerge.

We found that working parents who report greater trait mindfulness also report greater work–family balance. This finding provides initial support for our contention that the enhanced self-regulation that comes with mindfulness may enable individuals to experience satisfaction and effectiveness within each role. Another unique contribution of our study is that we demonstrate that the process by which trait mindfulness relates to work–family balance is through enhanced sleep quality and vitality. Individuals more predisposed to mindfulness tend to experience greater sleep quality and vitality, which in turn relate to greater work–family balance.

It is notable that the observed mediating effect was primarily transmitted through sleep quality, providing further evidence of the importance of sleep quality for working parents. A small body of research has found initial evidence that greater sleep quality is associated with less work–family conflict and with greater work–family facilitation (Lallukka, Rahkonen, Lahelma, & Arber, 2010; Sanz-Vergel, Demerouti, Mayo, & Moreno-Jimenez, 2011; Williams, Franche, Ibrahim, Mustard, & Layton, 2006). We add to this research by finding that sleep quality also positively relates to work–family balance.

Theoretical and practical implications

These findings have several important practical implications for organizations. Recent estimates indicate that fatigue-related productivity losses cost organizations thousands of dollars per employee annually (Rosekind et al., 2010). Given the ways in which sleep disturbances in particular link to health-care costs as well as to employee absenteeism and accidents (e.g., Akerstedt, Philip, Capelli, & Kecklund, 2011; Godet-Cayre et al., 2006), identifying ways to improve sleep and lessen fatigue is an essential endeavor of practical import. Cultivating mindfulness may be one tool that can help in this regard. As noted in the introduction, mindfulness-based treatments have been shown to improve mean scores in reports of trait mindfulness (Carmody et al., 2008; Chambers et al., 2008). Thus, mindfulness can be enhanced through training. Organizations may consider mindfulness-based interventions as a way to facilitate employee health and vitality, as well as work–family balance.

To date, most work–family interventions have been focused on organizational policies and procedures such as flextime and family-supportive supervision as tools to help individuals manage work and family demands (e. g., Hammer, Kossek, Anger, Bodner, & Zimmerman, 2011; Kossek, Pichler, Bodner, & Hammer, 2011). Relative to situational stressors and organizational supports,

Table 2
Multiple mediator regression results with work–family balance as dependent variable.

Independent variables	Step 1	Step 2	Step 3
Work hours	−.28***	−.30***	−.20*
Marital status	.05	.06	.07
Sex	−.09	.00	−.04
Trait mindfulness		.27**	.04
Sleep quality			−.28**
Vitality			.21*
R^2 at each step	.08	.14	.27
$R^2\Delta$		.06**	.13***
F			6.97***

Standardized regression weights reported.
*p<.05. **p<.01. ***p<.001.

Table 3
Indirect effects.

Variable	Point estimate	SE	Bias corrected confidence intervals	
			Lower	Upper
Vitality	.13	.08	.00	.33
Sleep quality	.15	.05	.05	.27
Total indirect effect	.28	.08	.12	.46

Bootstrap sample size = 1000.

individual cognitive strategies have received relatively less attention in the literature with regard to the promotion of overall work–life balance (see Baltes & Heydens-Gahir, 2003 for an exception). Two-pronged approaches that include both individual-based methods such as the cultivation of mindfulness along with situational-based methods such as family-supportive supervision may be optimally effective.

Our results also have theoretical implications. Research on employee health as well as work–family issues has relied greatly on stressor–strain and role conflict theories (Hammer & Zimmerman, 2011). As research on dispositional mindfulness continues in the context of employee health and work–family balance, new theoretical frameworks can be tested that further integrate established theories of work–family with those of mindfulness.

One promising direction is the use of self-regulation theory. Mindfulness is thought to be beneficial in that it improves self-regulation (Brown & Ryan, 2003; Glomb et al., 2011). Improved affective regulation may be particularly beneficial within the work–family context. Mood states and traits have been consistently linked to work–family conflict (Allen et al., in press; Judge, Ilies, & Scott, 2006) and to work–family enrichment (Carlson et al., 2011; Wayne, Musisca, & Fleeson, 2004). Moreover, sleep has been shown to be critical for affect regulation (Zohar, Tzischinsky, Epsten, & Lavie, 2005). Thus, by understanding affective regulation and the ways in which mindfulness contributes to it, new insights into the occurrence of work–family balance, work–family conflict, work–family enrichment, and health-related behaviors may be revealed. The results of the current study help demonstrate that such efforts may be fruitful.

Limitations

Several limitations associated with the current study should be recognized. The cross-sectional nature of the data prohibits us from testing the temporal relationship among the variables of interest. Alternative causal flows among the variables to those proposed may exist. Multiple wave intervention studies are an important next step for future research. Another limitation is that our sample was limited to working parents who were alumni of a single university. It will be important to explore under what contexts the relationships observed in the current study generalize. Although self-reports were appropriate given our focal constructs, there may be concerns with regard to biases that can result from such designs (Brannick, Chan, Conway, Lance, & Spector, 2010). Several factors mitigate these concerns. One, to reduce the potential for response sets, we a priori used measures that varied with regard to response scale points and anchors. In addition, the correlations shown in Table 1 include those that approach zero. Moreover, as noted by Conway and Lance (2010), the notion that self-report variables are upwardly biased is a fundamental misconception.

Future research

In future studies, it may be useful to integrate research on mindfulness, work–family balance, and detachment. Several studies have shown that being able to detach from work during off-job time has beneficial outcomes (e.g., Fritz, Yankelvich, Zarubin, & Barger, 2010; Sonnentag, Binnewies, & Mojza, 2010). Killingsworth and Gilbert (2010) report that individuals are frequently thinking about something other than what it is that they are doing. In addition, Killingsworth and Gilbert report that people were less happy when their minds were wandering than when they were not, regardless of the pleasantness of the topic to which their minds wandered. Killingsworth and Gilbert conclude that, "a human mind is a wandering mind, and a wandering mind is an unhappy mind" (p. 932). Mindfulness involves noticing that your mind has wandered and bringing it back to the present moment each time it does (Kabat-Zinn, 1990), which may help facilitate the ability to detach from one role while in another.

Another related interesting line of research would be to investigate interruptions, technology use, and mindfulness. More mindful individuals may develop boundary-related policies that limit interruptions via email and social media. This is important in that Turkle (2011) has described how the use of technology has resulted in individuals who are so busy communicating that the time free of distractions that is needed for productive work and high quality relationships has declined. Moreover, a considerable body of research has shown that interruptions at work can have serious health and safety consequences (e.g., Monk, Trafton, & Boehm-Davis, 2008). Mindfulness may help individuals more readily collect their thoughts and return to the present moment following interruptions.

A major reason for investigating mindfulness as it relates to work–family balance is its amenability. As discussed earlier, supplementing current situational-based methods aimed at mitigating work–family challenges with individual-based methods such as fostering mindfulness may strongly benefit employees. Traditional mindfulness-based training interventions are time-consuming, which may be a difficult commitment for working parents already pressed for time. Klatt, Buckworth, and Malarkey (2009) modified such an intervention to fit within employees' lunch hours which still proved beneficial with participants

experiencing lowered stress and improved sleep quality. Further research on how to bring mindfulness-based treatment to the workplace, and particularly working parents, may be advantageous areas in which to continue research.

Conclusion

The challenge of balancing work and family roles is a key issue in contemporary society for both individuals and organizations (Halpern, 2004; Valcour, 2007). The current study provides a new perspective by introducing trait mindfulness as a unique individual difference variable into the work–family literature. Further, by investigating sleep quality and vitality as mediators, mechanisms that have previously received little attention, the current study outlines the process by which trait mindfulness relates to work–family balance. Results support the usefulness of further examination of the benefits of mindfulness in the work–family context.

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