



Why Do Some Toddlers Help A Stranger? Origins of Individual Differences in Prosocial Behavior

Emily K. Newton
Stevenson University

Miranda Goodman
Eckerd College

Ross A. Thompson
University of California, Davis

This study investigated the influence of emotion on toddlers' prosocial behavior in instrumental helping tasks with an unfamiliar adult. The goals were to examine whether early prosocial behavior was affected by (1) the adult's expressions of sadness (in contrast to a neutral expression) as a cue of need and (2) toddlers' emotion understanding. Thirty-five 18- to 20-month-olds participated in eight trials in which an experimenter either indicated need for assistance (experimental condition) or did not (control). In addition, the experimenter expressed either sadness or neutral affect in each trial. Toddlers' emotion understanding was assessed using maternal reports of children's emotion words. The experimenter's emotional expression alone was not associated with prosocial behavior, but toddlers helped more in experimental than control conditions. However, toddlers with larger emotion word vocabularies were marginally more prosocial when the experimenter expressed sadness, and girls provided more assistance than boys in experimental conditions. These findings highlight the complex influences of emotion on early prosocial motivation.

Correspondence should be sent to Emily K. Newton, Department of Psychology, Stevenson University, 1525 Greenspring Valley Road, Stevenson, MD 21153. E-mail: enewton@stevenson.edu

Research on early prosocial behavior has shown that toddlers are motivated to help unfamiliar adults (Warneken & Tomasello, 2006), that toddlers will differentially help others based on an individual's characteristics such as kindness to others (Vaish, Carpenter, & Tomasello, 2010), and that helping varies significantly based on the kind of assistance required (Svetlova, Nichols, & Brownell, 2010). In all of these studies, moreover, researchers report variability in helping behavior, with some young children assisting immediately and spontaneously, and others not at all. Little research has been devoted to elucidating the origins of these differences in prosocial behavior, even though they may be important to the development of prosocial motivation.

With very young children, emotion is likely to be an important contributor to prosocial motivation. Toddlers can readily and accurately identify others' emotions; their emotion word vocabularies are expanding, and in everyday situations, another's emotional expressions are often potent cues indicating the need for assistance. Moreover, a young child's capacity to feel resonantly or empathically with another's negative emotions can also provide incentives for helping (Vaish, Carpenter, & Tomasello, 2009). In this study, therefore, we examined two potential emotion-related sources of individual differences in toddlers' helping behavior. First, we examined the influence of the adult's emotional expressions on toddlers' helping behavior, particularly the adult's expressions of sadness as a cue to the child of the need for assistance. Second, we examined the influence of the toddler's emotion understanding, as indexed by differences in emotion language.

Past research on toddlers' prosocial behavior shows that children are adept at inferring adults' intentional states in simple helping situations (Warneken & Tomasello, 2006). In the procedure by Warneken and Tomasello (2006) on which our procedures were based, toddlers were presented with simple helping situations that were within the capabilities of the child (e.g., picking up a marker that has fallen on the floor), with conditions varying according to the adults' behavioral cues of needing assistance (e.g., reaching for the dropped marker in the experimental condition, but not reaching in the control condition). In the original procedure, however, the adult experimenter exhibited a neutral demeanor throughout the helping tasks in both conditions, neither indicating distress in situations where assistance was needed nor gratitude if the child helped. Yet in everyday situations of assistance, young children potentially respond to the emotional expressions of a potential help recipient as one of several indicators that assistance is needed. Indeed, an adult who seems to need help (such as by reaching toward a dropped object) but looks impassive would present young children with mixed cues about whether assistance is necessary.

In this study, therefore, our experimental procedure included the adult's salient sad expressions along with other behavioral indicators of needing assistance that were in Warneken and Tomasello's original procedure. We focused on sadness because it is a readily identified negative emotion that is associated with a need for assistance and is least likely to be threatening to a young child. Specifically, conditions involving the adult's sad or neutral expressions in the helping tasks were crossed with the experimental and control conditions of the original procedure. To maintain a safeguard against helping being motivated primarily by the adult's positive gratitude, however, the experimenter never thanked or otherwise conveyed gratitude to the child who provided assistance, but merely acknowledged the assistance with a declaratory statement (e.g., "Now I have my marker.").

In addition to the situational characteristics motivating children to behave prosocially, individual differences in children's social and emotion understanding may influence their abilities to detect and respond to others' intentional and emotive states. Several studies have shown that toddlers' emotion and internal state vocabulary is associated with their concurrent and future social and emotional understanding (Bretherton & Beeghly, 1982; Olineck & Poulin-Dubois, 2007). In addition, toddlers with more emotion words are more likely to show expressions of concern and positive social responses to another's distress (Nichols, Svetlova, & Brownell, 2009). These studies suggest that very young children with larger emotion word vocabularies have a better understanding of emotions in general and that this understanding is related to their behavioral responses. Therefore, we expected that children's emotion-related vocabularies would be associated with their prosocial behaviors in instrumental helping tasks, especially those involving the comprehension of another person's sadness.

The goals of this study therefore were to (1) evaluate whether an adult's expressions of sadness were associated with toddlers' prosocial initiatives, either independently of or interacting with the effects of adult gestures and other behaviors indicating the need for help and (2) assess whether toddlers with greater emotion language would be more likely to provide assistance.

METHOD

Participants

Thirty-five 18- to 21-month-olds ($M = 19.82$ months, $SD = .97$; 16 boys and 19 girls) participated with their mothers. Children were primarily Caucasian (73%) or of mixed ethnicity (22%), and the majority of mothers had completed a bachelor's degree (89%).

Procedure

Prior to coming to the laboratory, mothers completed the Internal State Language Questionnaire. At the laboratory playroom, the research assistant introduced the child to the materials used in the helping tasks and confirmed that the child could manipulate the objects including opening cabinet doors, cupboard doors, drawers, and a bin. Mothers read magazines in a chair in the corner of the room, while the experimenter (an adult female) proceeded with the first set of helping tasks. After these were completed, mothers and children read a storybook in a separate room before returning to the playroom for the second set of helping tasks.

Measures

Prosocial tasks

The child's prosocial behavior was measured with a series of eight tasks described in Table 1, based on Warneken and Tomasello (2006). A two-by-two design was used, with tasks varying by goal condition (experimental and control) and experimenter affect condition (neutral and sad). Thus, each child experienced eight trials (one of each of the eight tasks presented in Table 1) with two trials in each of four different conditions: neutral/experimental, sad/experimental, neutral/control, and sad/control. The tasks were grouped into two separately administered sets with one task from each of the four possible conditions in each set, and the two sets were separated by 10 min while the child read a story with the mother. The two sets were counterbalanced such that half of the children experienced one set first, and the other half experienced that set second. Within the two sets, the tasks were further counterbalanced in four different possible orders. In sum, there were eight different possible task orders depending on which within-set ordering and between-set ordering were used.

Each task trial lasted for 30 sec or until the child instrumentally helped the experimenter. In all conditions, the experimenter's behavior was as consistent as possible varying only in goal-related cues or affect expression. For all trials, during the first 10 sec, the experimenter looked at the target object (e.g., the dropped or thrown marker). For the following 10 sec, the experimenter alternated looks between the target object and the child. For the final 10 sec, the experimenter continued alternating looks between the child and the target object, and she made an exclamation about the situation (e.g., "My marker!"). At the end of the 30 sec or once help was provided, the experimenter expressed mildly positive affect.

TABLE 1
Description of Helping Tasks

<i>Task</i>	<i>Description</i>	<i>Behavior indicating need for help</i>	<i>Behavior indicating no need for help</i>
Marker	The experimenter reaches for her marker in order to draw a picture and knocks the marker to the floor.	The experimenter reaches for the marker.	The experimenter purposefully drops the marker on the floor and does not reach for it.
Clothespin	The experimenter drops a clothespin as she attempts to clip a cloth to a clothesline.	The experimenter reaches for the clothespin.	The experimenter throws the clothespin on the floor and does not reach for it.
Basket	As the experimenter attempts to put her story book inside a basket, she knocks the basket to the floor.	The experimenter reaches for the basket.	The experimenter places the basket on the floor and does not reach for it.
Tape	The experimenter drops her roll of tape as she attempts to affix a poster to the wall.	The experimenter reaches for the tape.	The experimenter throws the tape on the floor and does not reach for it.
Cabinet	The experimenter attempts to put a stack of magazines into a cabinet, but the cabinet doors are closed and her hands are full.	The experimenter bumps the magazines into the door of the cabinet.	The experimenter bumps the door of the cabinet as she puts the magazines on top.
Cupboard	The experimenter attempts to put a heavy bowl into a small cupboard, but the cupboard door is closed and her hands are full.	The experimenter bumps into the door of the cupboard with the bowl.	The experimenter bumps the door of the cupboard as she puts the bowl on top.
Bin	The experimenter attempts to put a blanket into a plastic bin, but the lid is on the bin and her hands are full.	The experimenter bumps into the lid with the blanket.	The experimenter bumps the lid of the bin while putting the blanket in a basket.
Drawer	The experimenter attempts to put a bulky sweater into a drawer, but the drawer is closed and her hands are full.	The experimenter bumps into the face of the drawer with the sweater.	The experimenter bumps the face of the drawer while putting the sweater on a shelf.

If the child helped the experimenter, the experimenter additionally made a simple declaratory statement about the situation (e.g., “Now I can finish my picture”). If the child did not help, the experimenter stated, “Well, I’ll just finish that later.” After each trial ended, the experimenter left the room and retrieved the materials for the next trial.

Goal manipulation

The experimental and control conditions varied in the cues related to the experimenter’s intentions and goals (see Table 1). In the experimental conditions, the experimenter provided cues that she needed assistance to achieve her goal, with the assistance consisting of an instrumental act that the child could perform (e.g., picking up a marker that the experimenter was reaching toward). In the control conditions, the experimenter’s behavior was similar except that she did not indicate a need for assistance (e.g., purposely threw a marker on the floor and did not reach for it).

Affect manipulation

The affect manipulation varied the emotional cues presented by the experimenter in the experimental and control conditions. In the neutral condition, the experimenter expressed neutral affect (straight mouth, furrowed brow, and nonword vocalizations such as “hmmm” in an even vocal tone) throughout the trial. The neutral condition did not include any overt negative or positive affective cues, but rather the experimenter expressed mild surprise and confusion, after that used by Warneken and Tomasello (2006, supplementary videos). In contrast, very clear cues of sad affect were expressed in the sad condition. The experimenter expressed sadness with a down-turned mouth, narrowed eyes, a depressed vocal tone, and nonword vocalizations such as “awwww” throughout.

Although the child’s attention at the onset of the test events could not be coded due to the nature of filming, the experimenter made every effort to ensure that the child was attending at the start of each trial, including making noise when she came into the room and speaking to the child briefly before each task (including saying the child’s name). In addition, the auditory cues in both neutral and sad conditions helped to ensure that children noticed the experimenter’s situation.

Internal state language

The Internal State Language Questionnaire (ISLQ) was adapted from Bretherton and Beeghly (1982) and consisted of 17 affective and 20

nonaffective internal state words. Mothers were sent the questionnaire several weeks before the laboratory session so they could observe their children's use of the words over an extended period of time. Mothers reported whether or not their children used each internal state word and gave an example of usage. Children's use of the words was summed for emotion and nonemotion internal state words separately, and the total number of children's emotion words in their vocabularies was used for analysis.

Prosocial behavior coding and reliability

Children's behaviors during the helping tasks were coded on a five-point scale of prosocial behavior adapted from Vaish et al. (2009) with a score of 1 indicating that the child attended for fewer than 5 sec to the experimenter or the objects in the experimenter's possession; 2 indicating that the child consistently attended (for at least 5 sec) to the experimenter or the experimenter's situation but did not act further; 3 indicating that the child described the situation through gesture or verbally (e.g., "Uh-oh!"); 4 indicating that the child attempted to help the experimenter but did not do so fully, which may include verbal suggestions (e.g., "Get it!"); and 5 indicating that the child instrumentally helped the experimenter achieve her goal. The only addition to the coding system by Vaish et al. (2009) was the fourth point on the scale used to identify attempted, but unsuccessful, helping acts. The child's behavior was coded from the time that the experimenter indicated or did not indicate need (Table 1) until the end of the 30 sec trial or until the child performed the target instrumental act (and received a score of a five). Each child was assigned a single score reflecting the child's most prosocial behavior within the 30 sec trial. Two coders coded 20% of the helping trials to establish reliability ($\kappa = .88$). Prosocial behavior was averaged across trials for each condition and the resulting scores ranged from 1 to 5. The latency to help was also recorded.

RESULTS

To test for order effects, a repeated measures ANOVA with two within-subjects factors (affect condition and goal condition) and three between-subjects factors including (1) the order of affect presented (i.e., first task was neutral or sad), (2) the order of tasks within the two prosocial task sets (i.e., experimental or control), and (3) the order in which task sets were presented. There were no main effects of the three order effect variables on the prosocial outcomes ($p = .76$, $p = .48$, and $p = .97$, respectively). To ensure that there was no practice effect, with prosociality increasing from

the first set of prosocial tasks to the second, a paired samples t-test was used to compare task performance in the first set of tasks (summed across all trials in the set) and the second set of tasks (summed across all trials in the set). The resulting test was not significant. In addition, prosocial behavior during the two sets was correlated ($r = .43, p < .05$), suggesting consistency in performance in the two task sets. As no order effects were found, task order was not included in any further analyses.

Bivariate correlations and descriptive data for all study variables and child age are presented in Table 2. Age was not correlated with any of the variables and was therefore excluded from further analyses. Child sex was associated with two variables such that girls had larger emotion word vocabularies than boys ($t(34) = -2.91, p < .01$) and displayed more prosocial behavior during the sad, experimental tasks than boys ($t(34) = -3.08, p < .01$). Child sex was included in subsequent analyses.

Before exploring the study hypotheses, we examined the number of instrumental helping acts in each condition and the latency to help, both common methods for assessing prosocial behavior in past research (Dunfield, Kuhlmeier, O'Connell, & Kelley, 2011; Warneken & Tomasello, 2006). Consistent with past research, children displayed instrumental helping acts significantly more often in the experimental trials (37% of trials) than the control trials (14%), $t = 3.88, p < .001$. In contrast, the number of instrumental helping acts exhibited in the sad and neutral conditions was comparable (26 and 22%, respectively), $t = .86, p = .39$. Similar to past studies, in experimental trials when children helped, they did so

TABLE 2
Descriptive Data and Bivariate Relations between the Variables

	1	2	3	4	5	6	7	<i>M (SD)</i>
1. Prosocial behavior (experimental, sad)	—	.40*	.58**	.47**	.29 [^]	.09	.43**	3.29 (1.16)
2. Prosocial behavior (control, sad)		—	.32 [^]	.18	.16	-.02	.23	2.71 (.78)
3. Prosocial behavior (experimental, neutral)			—	.33 [^]	.03	.01	.23	3.27 (1.10)
4. Prosocial behavior (control, neutral)				—	-.21	.28	-.15	2.61 (.85)
5. Emotion word Vocabulary					—	.12	.43**	3.83 (3.14)
6. Age (in days)						—	.09	603.74 (28.99)
7. Child sex							—	54% female

Note. [^] $p < .10$, * $p < .05$, ** $p < .01$.

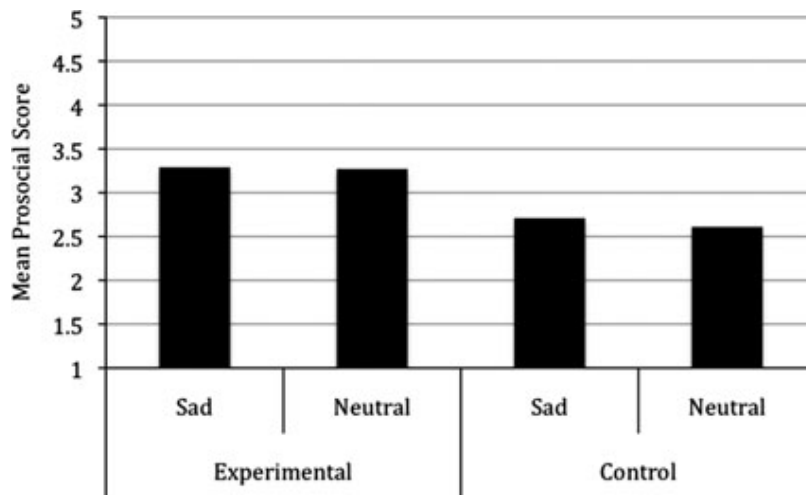


Figure 1 Mean prosocial behavior score in each condition.

quickly (in seconds, $M = 10.00$, $SD = 6.80$) although the speed at which children helped ranged from immediately to the full trial length.

To examine the primary research questions of the study, a repeated measures three-way ANCOVA (child sex, goal condition, and affect condition) was conducted with children's emotion word vocabularies entered as a covariate. Consistent with the t-test comparing instrumental helping acts, the main effect of goal manipulation was significant ($F(1, 32) = 5.15$, $p < .05$, $\eta_p^2 = .14$) showing that children were more prosocial in experimental than control conditions regardless of the emotion manipulation (Figure 1). There was no main effect of the emotion manipulation, however, and no interaction between the emotion manipulation and the goal manipulation. There was an interaction between goal condition and child sex ($F(1,32) = 4.59$, $p < .05$, $\eta_p^2 = .13$) with girls displaying more prosocial behavior than boys in experimental conditions and the two sexes displaying similar levels of prosociality in the control conditions (Figure 2). There was also a marginally significant interaction between emotion word vocabulary and affect condition ($F(1, 32) = 3.51$, $p = .07$, $\eta_p^2 = .10$). Given the moderate effect size of this interaction, we examined it more closely. In light of the low mean for this variable and a large proportion of children with no emotion words in their vocabularies (one-fifth of the sample), there was the possibility of a floor effect obscuring the effect of the interaction, so the top third of the sample was used as a cutoff. Exploration of this interaction showed that children with emotion vocabularies in the top third of the sample (seven or more emotion words) were more prosocial in sad conditions than children with fewer emotion words in their vocabularies, $t = 2.69$, $p < .05$ (Figure 3). The size of the effect

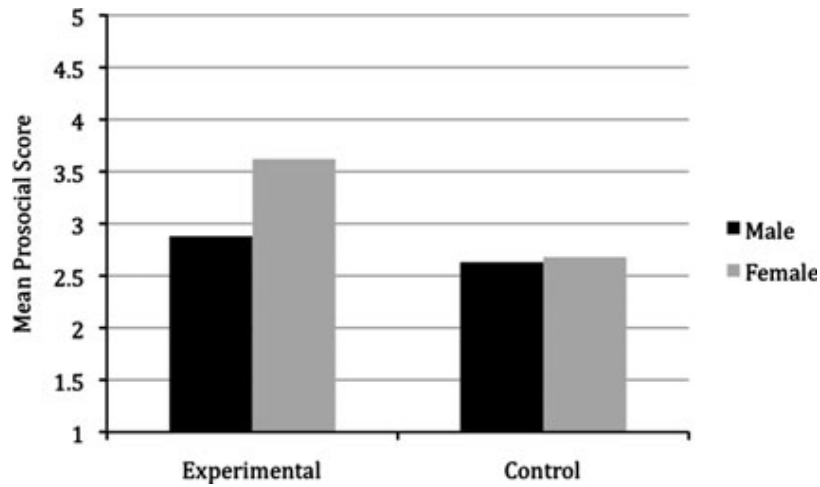


Figure 2 Interaction between child sex and goal manipulation.

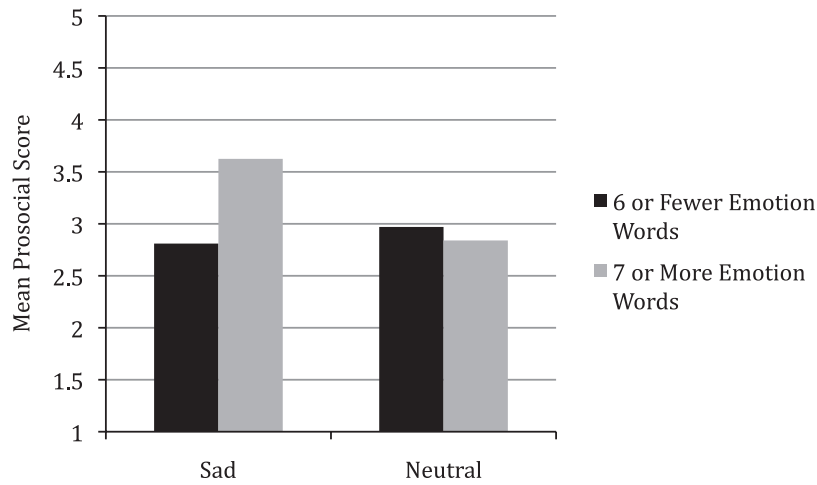


Figure 3 Interaction between child emotion word vocabulary and affect manipulation.

between the high and low groups only increased as the cutoff increased (up to a point) suggesting that the children with the largest emotion word vocabularies were, indeed, the most prosocial in sad conditions.

DISCUSSION

The findings of this study replicate earlier results indicating that toddlers are more likely to offer assistance in response to an adult’s cues of need than absent those cues (Dunfield et al., 2011; Svetlova et al., 2010; Warneken & Tomasello, 2006), but extend them by showing that the adult’s sad

emotion is not associated with enhanced helping at this early age, contrary to expectations. Girls were more helpful than boys in experimental conditions, and toddlers with larger emotion vocabularies were marginally more likely to help when the experimenter displayed sad affect.

In everyday circumstances, a person's sad expression often conveys salient cues concerning the need for assistance. However, in this study, the experimenter's sad or neutral emotional demeanor was not associated with differences in toddler helping behavior. Overall, toddlers did not provide assistance more frequently when the experimenter appeared sad than neutral regardless of the presence (in experimental conditions) or absence (in control conditions) of other cues of need. Although studies of empathy suggest that there is an early-developing sensitivity to the emotions of others that is associated with helping (e.g., Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992), one implication of this finding is that absent other compelling cues of need (as in the control conditions), an adult's sad expression alone is insufficient to motivate instrumental helping in very young children. By contrast with gestures that draw direct attention to need states, in other words, toddlers may have greater difficulty inferring specific needs from sad facial expressions alone absent other direct cues. More research on young children's interpretations of and motivation to respond prosocially to emotional expressions in the absence of other contextual cues is warranted, particularly with attention to different kinds of prosocial conduct (e.g., helping vs. sharing).

Another potential emotional influence on early helping is the young child's emotion understanding. The results of this study suggest (albeit marginally) that early emotion understanding (indexed by the number of emotion words in the child's vocabulary) predicted prosocial behavior, but only in trials with strong emotional signals—that is, when the experimenter's sad expressions were combined with other behavioral cues signaling the need for assistance. This is consistent with the findings of Nichols et al. (2009) that toddlers with larger emotion word vocabularies showed more concern and positive interest in a distressed peer. Together, these findings suggest that greater emotion understanding in young children fosters helping particularly when emotional cues are salient, perhaps because their emotion understanding helps toddlers better interpret the adult's sad expression. These findings and others (e.g., Zahn-Waxler et al., 1992) suggest that children become more adept at responding to others' negative affect as their emotion understanding grows over the course of the second year of life.

Girls were more helpful than boys in experimental conditions, but there were no sex differences according to the experimenter's emotion, even though girls also had larger emotion word vocabularies. This is consistent with other studies finding few sex differences in early helping behavior

(Dunfield et al., 2011; Warneken & Tomasello, 2006) and mixed findings concerning sex differences at older ages (Eisenberg, Fabes, & Spinrad, 2006). Our results suggest, however, that greater attention to gender differences in emotion-related prosocial situations is warranted.

The developmental story yielded by these and other recent findings suggests that early prosocial behavior is motivationally multifaceted (Thompson & Newton, 2013). Helping behavior occurs earliest, although inconsistently, in response to another's perceived needs, with or without emotional cues (Warneken & Tomasello, 2006). As it develops, emotion understanding provides a supplementary motivational basis for prosocial conduct, contributing to the later development of empathic responding (Svetlova et al., 2010) and comforting (Dunfield et al., 2011). The toddlers of this study were at an early stage of this developmental process, but even so, those with greater emotion vocabularies were already responding more helpfully when emotional cues from another were salient.

Taken together, the findings from the present study suggest that emotional influences have important but complex relations to early prosocial motivation and offer new directions for further research. In light of the fact that the children in our study were very young and that the research design was correlational, a next step is for longitudinal research to examine how the influences of the help recipient's emotion cues and the child's developing emotion understanding contribute to prosocial motivation over time as theory of mind becomes better established. It is also important to examine emotional influences on other forms of prosocial behavior, such as sharing and altruism, that may have a stronger emotional component than instrumental helping.

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