

Measurement of Boundary Ambiguity in Families

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Dedication

This work is dedicated to the memory of Reuben Hill.

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The work of this project continues and scales are in the process of refinement. The authors would appreciate an abstract of any study done using scales from this publication so that a bibliography can be developed.

For permission to use the boundary ambiguity scales, contact Pauline Boss, Ph.D., Boundary Ambiguity Project, Family Social Science Department, University of Minnesota, McNeal Hall, St. Paul, Minnesota, 55108.

For information on obtaining a copy of this publication contact the MES Distribution Center, Coffey Hall, University of Minnesota, St. Paul, Minnesota 55108.

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MEASUREMENT OF BOUNDARY AMBIGUITY IN FAMILIES

Pauline G. Boss, Jan R. Greenberg and Debra Pearce-McCall

INTRODUCTION: THE MEASUREMENT OF FAMILY BOUNDARY AMBIGUITY

Family boundary ambiguity is increasingly used in family research to describe and predict the effects of family membership loss and change over time. Boundary ambiguity is defined as the family not knowing who is in and who is out of the system. The family may perceive a physically absent member as psychologically present or may perceive a physically present member as psychologically absent (Figure 1). In either case, the family boundary is ambiguous.

Based on clinical observation and early research, the authors of this publication believe there is often an overtly or covertly agreed-on family perception of who is in and who is out of the family. However, sometimes individual members will perceive family membership and boundaries differently.

The instruments in this publication are individual measures of boundary ambiguity. The authors

Figure 1. High and low boundary ambiguity

High Boundary Ambiguity		Low Boundary Ambiguity	
Physical Absence	Physical Presence	Physical Absence	Physical Presence
Psychological Presence	Psychological Absence	Psychological Absence	Psychological Presence
<p><i>Example:</i> Families with a missing member(s). There is a preoccupation with the thought of the absent member(s). Process of grieving and restructuring cannot begin since the facts surrounding the loss of the person(s) are not clear. May also happen in divorced families since the loss is not clear-cut.</p>	<p><i>Example:</i> Families in which a member(s) is physically there but not emotionally available to the system. Family is intact, but a member(s) is psychologically absent due to preoccupation with something outside the system (e.g. work, another person, chemicals) or due to chronic illness (e.g. Alzheimer's disease, schizophrenia, chemical dependence, AIDS, dementia).</p>	<p><i>Example:</i> Families in which a member(s) is both gone and grieved. Member(s) may still be thought of and missed, but there is no longer a preoccupation with the loss. System has restructured without that person and goes on.</p>	<p><i>Example:</i> Families in which a member(s) is both physically and psychologically inside the system, such as in a marriage where the spouses are constantly together, physically and psychologically.</p>

believe group measures of boundary ambiguity are also needed to fully examine the degree of boundary ambiguity in a family system. Work on developing such measures is underway.

The objective in this publication is to review the boundary ambiguity research and theory development project, and to provide measures of boundary ambiguity for researchers to use when studying different situations or events of loss.

The construct of boundary ambiguity and the Boundary Ambiguity Scale (originally called the Psychological Presence Scale) were developed inductively out of clinical observation (Boss, 1975a,b), tested deductively with a population of military families experiencing extreme ambiguity in their loss (a male member missing-in-action in Vietnam) (Boss, 1977, 1980a), and recently tested again with a civilian population experiencing a more normative loss (mid-life families launching an adolescent from the home) (Boss, Pearce-McCall, and Greenberg, 1987).

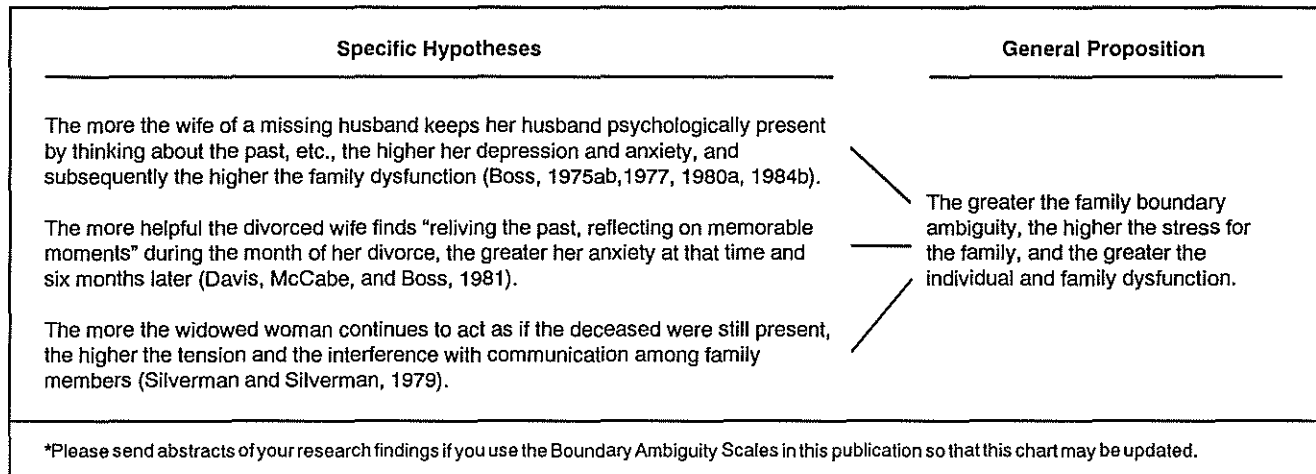
Research is presently in progress using other populations experiencing ambiguous loss, specifically, chronic illness (e.g., Alzheimer's

disease; Boss, Caron, and Horbal, 1988) and divorce (Pearce-McCall, 1988).

The scales presented in this publication measure boundary ambiguity through self-reports of family members' perceptions of psychological presence with physical absence (MIA, divorce), or physical presence with psychological absence (chronic illness). It should be noted that this is only one way of operationalizing and measuring the construct of boundary ambiguity. Present research on families of Alzheimer's patients and on divorce and remarriage families are providing other methods for measuring boundary ambiguity, including individual and family measures.

The boundary ambiguity project is an example of how systematic theory building over time can produce a more general variable in the family stress literature (Figure 2). Such umbrella variables allow better understanding of stressed families because they direct our focus to family process rather than to specific stressor events. The authors believe family process is the primary medium for interventions, as stressor events are often not amenable to change.

Figure 2. Propositions regarding boundary ambiguity: induction of a more general theoretical proposition regarding loss in families: family boundary ambiguity*



THEORETICAL BASE FOR THE INSTRUMENT

Degree of boundary ambiguity is a new variable presented as critical to understanding families in stress. It refers both to real uncertainty about the loss of a family member as well as to the failure of the family to alter its perception to fit reality after a loss has occurred.

A brief review of family boundaries from various research perspectives is in Figure 3.¹ The development of the boundary ambiguity construct rests on a broad base of literature, including the work of Aldous, 1978; Berger and Luckmann, 1966; Boszormenyi-Nagy and Spark, 1973; Buckley, 1967; Goffman, 1974; Hage, 1972; Hill, 1949, 1971; Homans, 1950; Kantor and Lehr, 1975; Lewin, 1951; Minuchin, 1974; Moos and Moos, 1981; Reiss, 1971, 1981; Rice, 1969; Simmel, 1964; and Whitaker and Keith, 1981.

Boundary ambiguity can result from events both

inside and *outside* the family. From outside the family, a situation can arise in which the family *cannot get the facts* surrounding the event of loss. Examples are families with missing members or chronically ill members where the status or progression of the loss is and continues to be uncertain. The source of ambiguity in these situations is from outside the family and is based on a lack of facts or an inherent uncertainty about the event or loss.

¹ Note that family therapists and symbolic interactionists use similar indicators of boundary ambiguity whereas demographers and structure-functionalists use another set of indicators. Boss's development of the boundary ambiguity construct is based primarily on the family therapy/symbolic interaction perspective that perceptions, even more than structure, determine family boundaries.

Figure 3: How are family boundaries determined?

Indicators Used Primarily By Demographers and Structure-Functionalists	Indicators Used Primarily By Family Therapists and Symbolic Interactionists
Community norms and laws; societal mores.	Community perceptions and rules; societal context.
Family norms, family rituals.	Family rules, family rituals; family ghosts, invisible loyalties, communication patterns.
Family structure: physical presence of members inside the household, determined quantitatively by counting who is physically in and who is physically out of the household.	Family structure: determined by symbolic as well as physical presence of members. These members may not only be in the household, but can exist in the minds of the family members.
Family function: the roles and tasks assigned to people physically present inside the household.	Family function: roles and tasks assigned to people both physically present and psychologically present in the minds of the people in the household.
Family boundary maintenance: being certain of family membership. Reflects stability, homeostasis. Resolved through structure maintenance.	Family boundary ambiguity: not being sure who is inside or who is outside the family. Reflects instability, disequilibrium. Resolved through process of reorganizing, changing family and individual perceptions. Nonambiguous state often called "clear boundaries."

From events inside the family, a situation may develop in which family members *can get the facts surrounding the event of loss but, for some reason, they ignore or deny these facts*. From within the family, then, the interpretation of reality becomes the source of ambiguity. Such families may psychologically exclude a terminally ill family member when in fact he or she is still physically present, or they may continue to center their lives around an adolescent who has physically left home. They may psychologically cut themselves off from an alcoholic family member who is still physically present, or may continue to behave as if the family structure remains the same as before a loss or change such as divorce.

In the case of divorce, boundary ambiguity can result even when the fact of divorce is neither ignored nor denied because the interpretation of reality (who is in or out of the family) becomes different for various family members. If these differing perceptions of "family" are not openly acknowledged, the structural reorganization and family redefinition that is needed after divorce may be blocked.

These examples illustrate that while the intensity may vary, boundary ambiguity can potentially exist in any situation of loss, normative or non-normative, expected or unexpected.

THEORETICAL PROPOSITIONS

Six theoretical propositions may be presented based on the boundary ambiguity research and theory development project (Boss, 1975-1988). These, including some brief discussions, are:

1. The higher the boundary ambiguity in the family system, the higher the family stress and the greater the individual and family dysfunction.

Figure 2 illustrates how specific hypotheses from various completed studies allow and lead us to the induction of this more general theoretical proposition about family stress.

Boundary ambiguity can result from the outside world not giving the family enough information about the event of loss, or it can arise inside the family based on their perceptions of the loss. In either case, the ultimate indicator of who is in and who is out of the family is based on the *family and family members'* perceptions of family membership.

2. Over the short term, family boundary ambiguity may not be dysfunctional.

In the period immediately following an expected or unexpected loss or separation, a period of boundary ambiguity may give family members time to accept the information that the status quo has been broken and that change has occurred. They may use this early period to deny loss or to explore options for structural reorganization.

Over time, an adaptable family system will begin to be able to tolerate information about loss so that reorganization processes can begin. Ideally, this means that through a cognitive and interpersonal restructuring of the meaning of the event of loss, the boundaries of the system are once again clarified and can be maintained.

3. If a high degree of family boundary ambiguity persists over time, the family system will become highly stressed and subsequently dysfunctional.

Holding a system in an ambiguously bounded state blocks cognition as well as the emotional and behavioral responses that begin the family restructuring processes. For example, families with a chronically ill member may, because of the persistence of the stressor, either deny the person's illness or deny the ill person's presence in the system. This can happen even while the sick person is physically present in the home (Gonzalez and Reiss, 1981).

Chronic illnesses which are in themselves ambiguous in their progress and treatment (such as Alzheimer's disease) are more likely to result in a high degree of family boundary ambiguity than illnesses which are more predictable and treatable. In the former situation, the family knows the ill member is going to die, but they don't know when. In the case of illnesses which are in remission, they are never quite sure whether the person is dying (leaving the family) or not.

When a family cannot or does not know with any certainty what is happening regarding family membership, they are likely to experience high levels of boundary ambiguity. If these circumstances persist, stress can remain extremely high and the system is likely to become dysfunctional.

4. Families with varying belief systems (e.g., Mastery vs. Fatalism) will differ in how they perceive their family boundaries, even after similar events of loss or separation.

Because family belief systems and value orientations will influence how individuals and families perceive stressor events and how they manage and solve problems, the levels of stress

stimulated by a particular stressor event will vary across religions, cultures and subcultures. (For details see pages 95–107 in Boss, 1988; and Boss, Caron, Horbal, and Mortimer, 1990).

5. The length of time a family will be able to tolerate a high degree of boundary ambiguity will be influenced by the family's value orientation (e.g., Mastery vs. Fatalism).

Family stress cannot be understood without taking into account the family's value orientation. For example, in a context of fatalism, where events of loss such as death may be passively accepted as simply the way of life, boundary ambiguity may be too quickly resolved. For a full discussion of potential differences resulting from

varying value orientations, see Boss, 1987b and 1988.

6. The family's perception (definition) of an event will be influenced by the larger community context.

The family's community or cultural context will influence how readily the system can accept information about an event of loss or change, and the meaning that is given to such an event. Researchers and therapists, realizing that families are not isolated systems, should seek to understand families as part of larger systems which both influence them and are influenced by them. (See Boss, 1987ab, 1988; Moos and Moos, 1981; Reiss, 1981; Reiss and Oliveri, 1983).

EMPIRICAL STUDIES USING BOUNDARY AMBIGUITY SCALES: RELIABILITY AND VALIDITY

OVERVIEW

This section reviews research using the boundary ambiguity concept. Continuing studies using varied and/or larger samples are in progress and this publication will be updated as information becomes available. See Appendix 1 for the six scales and Appendix 2 for coding information.

As boundary ambiguity is expected to change over time, we need to establish internal consistency reliability (Cronbach's alpha) for each scale rather than rely on test-retest measures of reliability. The validity of the construct is based on the verification of a positive relationship between degree of boundary ambiguity and level of individual and family dysfunction across many different samples.

To date, studies have been conducted with samples of wives of men missing-in-action in Viet Nam, widows, parents of adolescents leaving home, divorcees, and families of Alzheimer's patients. Specific discussions of reliability and validity are included, when available, in the brief description of each study that follows. See the original articles for more details.

MIA STUDY

The Family Boundary Ambiguity Scale was originally developed out of findings from a study of families with a husband/father who was missing-in-action (MIA). It was tested with factor analytic techniques in the second phase of the study (for details see Boss, 1977, 1980a).

The factor that surfaced in this study was labeled "psychological father presence." It is empirically presented in Table 1. The original research scale based on this factor is presented in Boundary Ambiguity Scale #1 in Appendix 1.

In this study of MIA families, Boss (1977) empirically established the *construct validation* of

the Psychological Presence Scale (now titled the Boundary Ambiguity Scale). In accordance with her prediction, psychological father presence was significantly related to wife and family functioning. A low degree of psychological father presence was found to be related to a high degree of functionality for the MIA wife ($r = -.35$, $p < .05$).

Boss (1980a) also reported that MIA wives' scores on the Boundary Ambiguity Scale were significant predictors of their functioning ($R^2 = .14$, $p < .025$). A low degree of psychological father presence appeared to be related to a high degree of family functioning. Using the Moos and Moos environment scales (1981), correlations were $r = .35$ for the achievement scale, $r = .34$ for the organization scale, $r = .30$ for the control scale, and $r = .33$ for the rigidity/flexibility scale; $p = .05$ for all.

STUDIES OF WIDOWHOOD

This scale was subsequently adapted for use with widows whose husbands had died within the preceding six to twelve months. Separate studies were conducted by Blackburn at Montana State University-Bozeman (Blackburn, Greenberg, and Boss, 1987) and by Friday at the University of Wisconsin-Madison (Friday, 1985). The Boundary Ambiguity Scale #2 (Appendix 1) was used in these widowhood studies. Except for deleting military terms and references to parents, the scale was essentially the same as the original which was used with the MIA families.

To investigate changes over time, ranch and non-ranch women in the Montana study were interviewed twice, at six and at twelve months after the spouse's death. Six months after, 75% of the ranch and 72% of the non-ranch widows agreed with the seven items representing *low* psychological husband presence. Agreeing with the seven items representing high psychological husband presence were 26% of the ranch and 27% of the non-ranch widows.

Twelve months after the death of their spouses, the percentage of widows who agreed with the seven items representing low psychological husband presence increased to 82% for the ranch widows and 83% for the non-ranch widows. The percent agreeing with the seven items representing high psychological husband presence decreased to 18% of the ranch and 17% of the non-ranch widows.

As hypothesized, there was a decrease between the levels of boundary ambiguity at six months versus twelve months after being widowed. Even in six months time, there was empirical evidence suggesting that perceptual restructuring was occurring.

A hypothesized inverse relationship between psychological husband presence and self-esteem was also significant at six months after widowhood ($r = -.39, p < .01$). Moreover, although not reaching statistical significance, the correlation between psychological husband presence and psychosomatic complaints was in

the hypothesized positive direction.

At twelve months after widowhood, the great majority of widows in the study had completed the normal grief process and, as expected with a clear loss, no significant relationship remained between psychological husband presence and self-esteem or psychosomatic complaints. These findings were indeed in sharp contrast to those found with the MIA wives, who showed symptoms even 3-5 years after the loss of their husbands (Boss, 1977, 1980a).

Friday (1985) measured boundary ambiguity in a sample of 80 urban and rural women who had been widows for from six to twelve months. In this study, boundary ambiguity scores ranged from 20 to 41, with a mean of 34.76, and a standard deviation of 3.94. The reliability computed using the SPSS reliability procedure was .58. She found no rural/urban differences.

Friday makes the points that the overall level of boundary ambiguity in her sample was moderate,

Table 1. MIA Study: Items contained in the psychological father presence factor (18 items).

Loading	Item
-.8926	I no longer consider myself an "MIA" wife.
-.6572	I feel I have prepared myself for a change in status.
-.6023	My children are able to talk about their father without becoming emotionally upset.
-.5894	My children are aware of all "the facts" and have reconciled to their father's loss.
-.4998	I feel I am able to plan my future without feeling guilty for not continuing to wait for my husband.
-.4680	I hope to remarry.
-.4570	The Armed Services have done everything reasonably possible to account for my husband.
.8164	I find myself still wondering if my husband is alive.
.8162	I continue to keep alive my deepest hope that my husband will return.
.7722	I feel guilty about dating (or wanting to date).
.7094	My children still believe that their father is alive.
.5791	I will never be satisfied until I have positive proof of my husband's death.
.4705	My children and I talk about their father seemingly quite often.
.4368	I think about my husband a lot.
.4255	I feel it will be difficult, if not impossible, to carve out a new life for myself without my husband.
.3490	I feel incapable of establishing a meaningful relationship with another man.
.2623	Conflicts with my own parents over my husband's change of status have presented a problem for me.
.2873	My in-laws do not or would not approve of my plans to develop a life for myself.

Eigen value = 6.25. Total observed variance accounted for = 33%.
Total explained variance accounted for = 39%

and that examining more recently widowed persons would possibly reveal higher levels of boundary ambiguity.

A number of interesting correlations were reported by Friday (1985). Women reporting high boundary ambiguity also reported high marital quality ($r=.309$, $p=.015$) and high levels of religiosity ($r=.321$, $p=.012$).

The duration of the husband's illness before death was also positively correlated with boundary ambiguity ($r=.309$, $p=.015$). As expected, boundary ambiguity was negatively related to length of widowhood ($r=-.274$, $p=.044$), indicating, as in the other study of widows, that it did take *time* for widows to close their deceased husband out of the family system.

The present publication's authors examined the frequencies found for the Montana ranch widows and the more urban Madison, Wisconsin, widows to determine whether or not the Boundary Ambiguity Scale for widows discriminates between community contexts. Although further verification is needed, it can tentatively be said that there are some differences between these two populations.

On the items inferring beliefs in an after-life (items 5 and 6) and in self-sufficiency (item 10), a higher focus on religiosity and self-sufficiency for the Montana ranch widows was apparent. Overall, however, these urban and rural samples of widows both appeared to be lower on boundary ambiguity than the women in previous military samples where husbands were missing rather than clearly dead. This appears consistent with the nature of the losses: death is not an ambiguous loss, "missing in action" is. However, these statements require further empirical verification.

PSYCHOLOGICAL PRESENCE OF AN ADOLESCENT WHO HAS LEFT HOME

Another version of the Boundary Ambiguity Scale (Boundary Ambiguity Scale #3, Appendix 1) was used to study a normative population of Minnesota mid-life couples with an adolescent leaving home (see Boss, Pearce-McCall, and Greenberg, 1987). The original boundary ambiguity questions were again used, and some items based on the adolescent literature and on clinical judgement were added.

In this sample of mid-life families, the Cronbach alpha *reliability* for the Boundary Ambiguity Scale

was .74, calculated using the SPSS reliability subprogram.

The *content validity* of this scale was determined with a panel of twenty psychiatrists who reviewed the scale and judged that the items "made sense" and were relevant to the population under study.

As a check on the *construct validity* of this scale, scores were compared with respondents' ratings of how stressful it was for them when their adolescent moved out of the household. For both husbands and wives, boundary ambiguity scores and responses to this item were significantly correlated (husbands: $r=.29$, $p=.014$ / wives: $r=.37$, $p=.003$). Men's scores on the Boundary Ambiguity Scale ranged from 16 to 38, $x = 26.57$, standard deviation = 5.27; women's scores ranged from 16 to 42, $x = 27.84$, standard deviation = 5.94.

Fathers' scores on the scale were the best predictors of the amount of psychosomatic complaints they reported, accounting for 14% of the variance in somatization scores. The regression using the women's somatization scores was not significant.

For mothers, patterns were found relating their levels of boundary ambiguity to the fathers' somatization scores and to both partners' general affect about life (see Boss, Pearce-McCall, and Greenberg, 1987).

NORMATIVE MID-LIFE FAMILIES

A second validation test was performed, this time using an eight state sample of mid-life families from the U.S.D.A. North Central 164 study (Greenberg, 1988). This is the first test of boundary ambiguity using a large, normative sample of families.

Sampling Method

The data set used in this research resulted from an eight state regional project on stress, coping, and adaptation during the middle years. The following three criteria were used in sampling mid-life families: (a) husband and wife were both present in the household, (b) the wife was between the ages of 35 and 54, and (c) there was at least one child present in the home.

The sample was randomly selected from a list provided for each state by a commercial marketing firm. The response rate, which varied somewhat from state to state, was between 30-

35%. The eight state sample totaled 1631 couples.

From this base sample, a subsample of couples was selected for the validation of the Psychological Presence Scale. The couples selected for the present study were those who had a child who had left home within the past year and who had completed the Psychological Presence Scale. These additional criteria reduced the sample to 355 mid-life couples.

Sample Descriptions

The sample is about evenly divided between urban and rural respondents with rural defined as farms and towns having populations of less than 2,500 residents. The number of children ranged from 2 to 9 with a mean family size of 4.8. Most of the respondents had high school educations, a mean of 13 years. Respondents had lived in their communities for an average of 29 years. The median family income before taxes was \$32,000. Over 30% of the wives were employed full-time with an additional 20% employed part-time outside the home. Ninety-eight percent of the respondents were white and 70% were Protestant.

Findings

The results of the study provided general support for the reliability and validity of the Psychological Presence Scale. Reliability of the scale was .71, which is acceptable and comparable to reported reliabilities of many scales widely used in the family field. Ten of the 14 hypotheses tested, 71%, were supported. (Tables 2 through 4.)

The results of this study led to a greater specification of the concept of psychological presence as used in boundary ambiguity research. The psychological preoccupation consisted of both an *affective* and a *cognitive* component. It was noted that the affective component includes negative expressions of emotions.

Revisions of the scale should attempt to achieve a balance between negative and positive emotions. Future research will need to examine which of these two components, affective or cognitive, is the best predictor of individual and family dysfunction.

Future work also needs to analyze gender differences in the factor structure of the

Table 2. Table of hypotheses.

Hypotheses	Supported by Data?	
	Fathers	Mothers
1. There will be a significant positive relationship between PPS and somatization.	Yes .16*	Yes .16*
2. There will be a significant negative relationship between PPS and positive individual affect.	Yes -.18*	No -.04
3. There will be a significant positive relationship between PPS and family stress.	No .03	No .03
4. There will be a significant negative relationship between PPS and the parent's overall rating of how positively he/she felt about the adolescent leaving.	Yes -.44*	Yes -.49*
5. There will be no significant relationship between PPS and family satisfaction.	Yes -.05	Yes .00
6. There will be no significant relationship between PPS and marital satisfaction.	Yes -.01	Yes .00
7. There will be no significant relationship between PPS and life satisfaction.	No -.09*	Yes .02

n=355; *p<.05

Table 3. Parameter estimates for one factor model husbands and wives.

Items	Factor Loadings	
	Husbands	Wives
1. Difficult	.52	.76
2. Prepared	.21	.43
3. Grown up	.45	.68
4. Alive/hope	.33	.30
5. Bothered/miss	.71	.80
6. Bothered/lonely	.63	.74
7. Talk	.23	.16
8. Think	.32	.27
9. Think/doing	.44	.36

<i>Husbands</i> Chi square = 271.54 df = 27, p = .000 Goodness of fit = .84 Root mean square residual = .09	<i>Wives</i> Chi square = 225.75 df = 27, p = .000 Goodness of fit = .87 Root mean square residual = .07
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Table 4. Parameter estimates for two factor model husbands and wives.

Items	Factor I Affective Preoccupation		Factor II Cognitive Preoccupation	
	Husbands	Wives	Husbands	Wives
	1. Difficult for me	.56	.77	.00
2. Prepared self	.24	.44	.00	.00
3. Difficult accepting	.48	.69	.00	.00
4. Continue/hope	.35	.30	.00	.00
5. Bothered/miss child	.72	.80	.00	.00
6. Bothered/loneliness	.67	.76	.00	.00
7. Talk about	.00	.00	.44	.36
8. Think about	.00	.00	.58	.52
9. Think/doing	.00	.00	.53	.45

Correlation between Parental Role and Preoccupation: Husbands .419; Wives .460

<i>Husbands</i> Chi square = 91.20 [df = 26, p = .000] Goodness of fit = .942 Root mean square residual = .069	<i>Wives</i> Chi square = 79.2 [df = 26, p = .000] Goodness of fit = .95 Root mean square residual = .058
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Psychological Presence Scale. The results presented to date do not provide an answer. Rather than independently analyze husbands and wives, future work needs to statistically compare the factor structures using the group comparison analysis available with LISREL VII. (For details see Greenberg, 1988.)

RESEARCH IN PROGRESS ON AMBIGUOUS LOSS IN FAMILIES

NON-NORMATIVE LOSS: DIVORCE

Divorce and remarriage are family boundary changes that, although not considered normative, have become increasingly common and must be addressed by family researchers and clinicians (Ahrons and Rogers, 1987; Pasley, 1987; Pasley and Ihinger-Tallman, 1987, 1989). In these families, there is a high potential for boundary ambiguity, which could present a barrier to postdivorce reorganization. The hypothesis is that the degree of boundary ambiguity will be negatively related to the level of family adaptation after divorce and remarriage. Boundary ambiguity scales for the situations of divorce and remarriage have been prepared for the parental generation and for adolescent and young adult "children of divorce."

The divorced adults scale (Scale #5, Appendix 1) is based on the original Boundary Ambiguity Scale with slight modifications in wording and a few changed items. A sample of 12 family researchers and clinicians who have personal and professional experiences with divorce examined the items and judged the scale as having content validity.

The scale for children of divorce (Scale # 4, Appendix 1) was constructed from a content analysis of the literature and a series of interviews with adult children of divorce, using previous boundary ambiguity scales and research as guides. The scale was piloted with a sample of adult children of divorce and revised.

In a second sample of adult children, scores on the 21-item scale applicable to *all* adult children of divorce ranged from 32 to 78, mean = 53.63, SD = 10.45. Ratings on the five additional questions answered only by those with remarried parents were not included in these analyses. In this sample, the Cronbach alpha reliability was .75, calculated using the SPSS reliability subprogram. On the basis of the results, one item

was revised. The revised scale is Scale #4 in this manual.

This study was only exploratory, but some interesting patterns and correlations were found deserving further empirical investigation. Boundary ambiguity was significantly and positively correlated with the level of tension that adult daughters perceived in their parents' current relationship ($r = .47, p = .007$). Boundary ambiguity scores were negatively correlated with three items measuring the amount of contact daughters currently had with their mothers ($r = -.48, -.55, -.34; p = .002, .042, .005$).

Support for the general theory of boundary ambiguity was found. Boundary ambiguity scores were positively correlated with the level of felt stress daughters reported having when in the presence of both parents ($r = .42, p = .025$). Also, the less a daughter accepted the present reality of her parents' relationship (denial), the higher her boundary ambiguity scores were ("I wish my parents got along better" $r = .59, p = .001$; "I am hopeful that their relationship will improve" $r = .35, p = .035$).

Copies of these instruments are included in Appendix 1 as Boundary Ambiguity Scales #4 and #5. More information about boundary ambiguity in post-divorce/remarried families can be found in a dissertation on adult children of divorce (Pearce-McCall, 1988). Both qualitative and quantitative analyses are used in that study. The revision of the scale is presented in this manual, and other researchers are encouraged to replicate this work.

CHRONIC ILLNESS

Caring for an aged member with Alzheimer's disease is one of the most stressful challenges for a family in later life. Research suggests that the stress experienced by caregiving families results not only from the burdens of providing physical care, but also from the nature of the care and the impact this has on the family's perception of the patient.

These perceptual factors have been shown to contribute greater strain than the actual burdens of physical care (Zarit, Reever, and Bach-Peterson, 1980). It is hypothesized that caregiver strain will be primarily due to their perception of the boundary ambiguity resulting from the patient's continued physical presence but increasing psychological absence from the family.

The original Boundary Ambiguity Scale has been adapted for use with caregivers and other family members of Alzheimer's patients (found in Appendix 1 as Boundary Ambiguity Scale #6). The scale remains much like Scale #1, which was used in the original MIA study, except that references to the military and to parents have been deleted. Noted, however, are both Greenberg's findings (1988) for a two-factor structure, and plans by the authors of this publication to test those findings.

Scale #6 is being validated in a five-year longitudinal study of Alzheimer's disease and family stress, presently underway at the University of Minnesota and the Veterans Administration Medical Center of Minneapolis.²

The authors invite researchers to test this work, especially those researchers interested in studying the impact on families of chronic illness where there is ambiguous loss. There is a current focus on families of dementia from Alzheimer's

disease, but testing this work on families where there are ambiguous losses from other chronic illnesses, such as AIDS, schizophrenia, autism, alcoholism, or Parkinson's disease is encouraged.

It is proposed that boundary ambiguity, more than the illness itself, immobilizes caregivers and families of the chronically ill. The theoretical hypotheses of this entire project now need to be tested by other investigators on a variety of samples where there is unclear loss--divorced, remarried, mid-life/launching, chemically ill and missing persons. It is toward that end, that this manual has been produced.

² National Institute on Aging Grant #1-P50-MH40317-01, Project #5: "The Psycho-Social Impact of Dementia on the Caregiver and Family of Alzheimer Patients," April 1968-1991; Gabe J. Maletta, Principal Investigator for the Dementia Center Grant; Pauline Boss, Principal Investigator for the Dementia Family Project.

APPENDIX 1:

SIX BOUNDARY AMBIGUITY SCALES _____

**BOUNDARY AMBIGUITY SCALE #1
FOR WIVES OF MEN DECLARED MISSING-IN-ACTION (MIA)**

Pauline Boss

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The following statements are about the changes in your family since your husband was declared missing-in-action. Using the scale provided as your guideline, choose the number that best shows how you feel and place it in the blank to the left of each item. There are no right or wrong answers.

For questions 1-18, use the following scale as a guide in answering:

STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	2	3	4	5

- ___ 1. I no longer consider myself an "MIA" wife.
- ___ 2. I feel I have prepared myself for a change in status (to widow).
- ___ 3. I find myself still wondering if my husband is alive.
- ___ 4. I continue to keep alive my deepest hope that my husband will return.
- ___ 5. I feel guilty about dating (or wanting to date).
- ___ 6. I feel I am able to plan my future without feeling guilty for not continuing to wait for my husband.
- ___ 7. I will never be satisfied until I have positive proof of my husband's death.
- ___ 8. I hope to remarry.
- ___ 9. I think about my husband a lot.
- ___ 10. I feel it will be difficult, if not impossible, to carve out a new life for myself without my husband.
- ___ 11. The Armed Services have done everything reasonably possible to account for my husband.
- ___ 12. I feel incapable of establishing a meaningful relationship with another man.
- ___ 13. My children are able to talk about their father without becoming emotionally upset.
- ___ 14. My children still believe that their father is alive.
- ___ 15. My children are aware of all "the facts" and have reconciled their father's loss.
- ___ 16. My children and I talk about their father seemingly quite often.
- ___ 17. Conflicts with my own parents over my husband's change of status have presented a problem for me.
- ___ 18. My in-laws do not or would not approve of my plans to develop a life for myself.

[Adapted from Boss, 1980 and 1987]

**BOUNDARY AMBIGUITY SCALE #2
FOR WIDOWS**

Pauline Boss, Jan Greenberg, and James Blackburn
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The following statements are about your change in status from wife to widow. Using the scale provided as your guideline, choose the number that best shows how you feel and place it in the blank to the left of each item. There are no right or wrong answers.

For questions 1-12, use the following scale as a guide in answering:

STRONGLY DISAGREE		DISAGREE		AGREE		STRONGLY AGREE
1		2		3		4

- ___ 1. I no longer consider myself a wife.
- ___ 2. I feel I have prepared myself for a change in status (to widow).
- ___ 3. I feel I am able to plan my future without feeling guilty for not continuing to mourn for my husband.
- ___ 4. I hope to remarry.
- ___ 5. I find myself wondering if my husband is alive in a different dimension.
- ___ 6. I continue to keep alive my deepest hope that I will be with my husband again some day.
- ___ 7. I feel guilty about dating (or wanting to date).
- ___ 8. I still talk to or communicate with my husband.
- ___ 9. I think about my husband a lot.
- ___ 10. I feel it will be difficult, if not impossible, to carve out a new life for myself without my husband.
- ___ 11. I feel incapable of establishing meaningful relationships with other men.
- ___ 12. My children are able to talk about their father without becoming emotionally upset.

[For more information see Blackburn, Greenberg, and Boss, 1987]

**BOUNDARY AMBIGUITY SCALE #3
FOR PARENTS OF ADOLESCENTS LEAVING HOME**

Pauline Boss, Jan Greenberg, and Debra Pearce-McCall
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The following statements are about the changes in your family as your adolescent or young adult leaves home. (As you read, imagine his or her name in the space in the sentence.) Using the scale provided as your guideline, choose the number that best shows how you feel and place it in the blank to the left of each item. There are no right or wrong answers.

Birthdate for this child: _____

Year adolescent left home: _____

For questions 1-4, use the following scale as a guide in answering:

STRONGLY DISAGREE 1	MODERATELY DISAGREE 2	NEUTRAL 3	MODERATELY AGREE 4	STRONGLY AGREE 5
---------------------------	-----------------------------	--------------	--------------------------	------------------------

- ___ 1. I feel that it will be difficult for me now that _____ has left home.
- ___ 2. I feel that I prepared myself for _____ leaving home.
- ___ 3. I have difficulty accepting that _____ has grown up.
- ___ 4. I continue to keep alive my hope that _____ will return home to live.

For questions 5-9, use the following scale as a guide in answering:

NEVER 1	RARELY 2	SOMETIMES 3	OFTEN 4	ALMOST ALWAYS 5
------------	-------------	----------------	------------	-----------------------

- ___ 5. Our family talks about _____ quite often.
- ___ 6. I think about _____ a lot.
- ___ 7. I find myself thinking about where _____ is and what s/he is doing.
- ___ 8. I am bothered because I miss my son/daughter.
- ___ 9. Since _____ left, I am bothered by feelings of loneliness.

[Adapted from Boss, Pearce-McCall, and Greenberg, 1987]

**BOUNDARY AMBIGUITY SCALE #4
FOR ADOLESCENT AND ADULT CHILDREN OF DIVORCE**

Debra Pearce-McCall and Pauline Boss

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The following statements are about the changes in your family since the divorce of your parents. Using the scale provided as your guideline, choose the number that best shows how you feel and place it in the blank to the left of each item. There are no right or wrong answers.

For questions 1-25, use the following scale as a guide in answering:

NEVER	RARELY	SOMETIMES	OFTEN	ALMOST ALWAYS
1	2	3	4	5

- ___ 1. I hope that my parents' relationship with each other will improve.
- ___ 2. I worry about whether I am spending enough time with each of my parents.
- ___ 3. My parents and I can solve family problems together.
- ___ 4. I find myself being a go-between for my parents (e.g., carrying messages, making arrangements).
- ___ 5. I feel as though each of my parents wants me to be on his/her side.
- ___ 6. Since the divorce, I find it more difficult to talk with my father about things I may need from him (money, time, advice).
- ___ 7. Since the divorce, I find it more difficult to talk with my mother about things I may need from her (money, time, advice).
- ___ 8. My feeling about whom I consider a member of my family and who is not a member of my family continues to change.
- ___ 9. I still feel disturbed about my parents' divorce.
- ___ 10. I think about my mother and my father as a unit, as "my parents."
- ___ 11. I feel comfortable talking about my mother in front of my father.
- ___ 12. I feel comfortable talking about my father in front of my mother.
- ___ 13. My family has clear rules about how money and financial arrangements should be handled.
- ___ 14. When I think about important future occasions (e.g., graduations, weddings, newborn children) where my parents will be together, I worry about how they will behave.
- ___ 15. People on my father's side of my family secretly ask me about my mother or ask me to say hello for them.
- ___ 16. People on my mother's side of my family secretly ask me about my father or ask me to say hello for them.
- ___ 17. I worry about which family members I should or will be with on important holidays and special occasions.
- ___ 18. My parents say things about each other to me that make me feel uncomfortable.
- ___ 19. In both of my parents' homes, I feel comfortable, like I belong.
- ___ 20. It is unclear how the relationships between my extended family (grandparents, uncles, aunts, cousins) will be affected by the divorce.

If one or both of your parents has remarried or has been cohabiting for over one year, answer the following items. If neither parent has remarried or been cohabiting for over one year, skip items 21-25.

- ___ 21. It took time, but now I have a good feeling about how we all fit together as a family.
- ___ 22. I will always think of my original nuclear family as my real family.
- ___ 23. I am confused about whether or not I accept my mother's partner as part of my family.
- ___ 24. I am confused about whether or not I accept my father's partner as part of my family.
- ___ 25. I am clear about what type of relationship(s) I want to have with my stepsibling(s) or my parent's partners' children.

**BOUNDARY AMBIGUITY SCALE #5
FOR DIVORCED ADULTS**

Pauline Boss and Debra Pearce-McCall

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The following statements are about the changes in your family since your divorce. Using the scale provided as your guideline, choose the number that best shows how you feel and place it in the blank to the left of each item. There are no right or wrong answers.

For questions 1-22, use the following scale as a guide in answering:

	NEVER	RARELY	SOMETIMES	OFTEN	ALMOST ALWAYS
	1	2	3	4	5
<input type="checkbox"/> 1.	I still consider myself a wife/husband to my former spouse.				
<input type="checkbox"/> 2.	Calling myself a divorced person feels comfortable to me now.				
<input type="checkbox"/> 3.	I feel upset when I imagine my former spouse with another man/woman.				
<input type="checkbox"/> 4.	I find myself wondering about where my former spouse is and what s/he is doing.				
<input type="checkbox"/> 5.	I feel that in some sense I will always be attached to my former spouse.				
<input type="checkbox"/> 6.	I still get my former spouse's advice about important personal decisions (e.g., health, career).				
<input type="checkbox"/> 7.	I continue to keep alive my hope that I will be reunited with my former spouse.				
<input type="checkbox"/> 8.	I continue to hope that my relationship with my former spouse will improve.				
<input type="checkbox"/> 9.	I feel competent performing the household or outside tasks that my former spouse used to do.				
<input type="checkbox"/> 10.	I feel guilty about dating (or wanting to date).				
<input type="checkbox"/> 11.	I feel that I have completely recovered from my divorce.				
<input type="checkbox"/> 12.	I still consider some members of my former spouse's family to be part of my family.				
<input type="checkbox"/> 13.	I feel incapable of establishing meaningful relationships with another man/woman.				
<input type="checkbox"/> 14.	I find myself asking my former spouse for advice about the areas s/he used to handle.				
<input type="checkbox"/> 15.	I often wonder what my former spouse's opinion or comment would be on events that happen or things I see during the day.				
<input type="checkbox"/> 16.	My former spouse and I discuss our new relationships with each other.				

If you do not have children, stop here. If you do have children, answer items 17-22:

- 17. My children and I are able to talk about my former spouse without becoming emotionally upset.
- 18. I worry that my children feel caught in the middle between me and my former spouse.
- 19. My former spouse and I agree on how to share the responsibilities of parenting.
- 20. My children are aware of the facts and are reconciled to the divorce.
- 21. My former spouse and I have difficulty discussing financial matters involving the children.
- 22. It feels like a complete family when the children and I are together without my former spouse.

**BOUNDARY AMBIGUITY SCALE #6
FOR CAREGIVERS OF PATIENTS WITH DEMENTIA**

Pauline Boss, Jan Greenberg, and Wayne Caron
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The following statements are about your relationship with the Alzheimer's patient. (As you read, imagine his or her name in the blank space in each sentence.) Using the scale provided as a guideline, choose the number that best shows how you feel and place it in the blank to the left of each item. There are no right or wrong answers. It is important that you answer every item, even if you are unsure of your answer.

For questions 1-14, use the following scale as a guide in answering:

STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE	UNSURE HOW I FEEL
1	2	3	4	5

- ___ 1. I feel guilty when I get out of the house to do something enjoyable while _____ remains at home.
- ___ 2. I feel it will be difficult if not impossible to carve out my own life as long as _____ needs my help.
- ___ 3. I feel incapable of establishing new friendships right now.
- ___ 4. I feel I cannot go anywhere without first thinking about _____'s needs.
- ___ 5. I feel like I have no time to myself.
- ___ 6. Sometimes I'm not sure where _____ fits in as part of the family.
- ___ 7. I'm not sure what I should expect _____ to do around the house.
- ___ 8. I often feel mixed up about how much I should be doing for _____.
- ___ 9. I put _____'s needs before my own.
- ___ 10. My family and I often have disagreements about my involvement with _____.
- ___ 11. When I'm not with _____, I find myself wondering how s/he is getting along.
- ___ 12. Family members tend to ignore _____.
- ___ 13. _____ no longer feels like my spouse/parent/sibling.
- ___ 14. I think about _____ a lot.

[For more information see Boss, Caron, Horbal, and Mortimer, 1990]

APPENDIX 2:

*ADMINISTERING, SCORING, AND
INTERPRETING THE SIX BOUNDARY
AMBIGUITY SCALES* _____

ADMINISTRATION

All of the boundary ambiguity instruments in this packet are self-report paper and pencil scales. The respondent is given a copy of the scale either by mail, or in a clinical or research setting under supervision. Instructions are on the questionnaires, as are the places for respondents to indicate their answers to each item. The scales take from five to fifteen minutes to complete.

after numerical answers to particular items have been reversed.

To partially avoid problems with people tending to respond in a certain way (response set), some items are worded so that a numerically greater answer indicates higher psychological presence or boundary ambiguity while other statements are worded so that higher numerical answers represent lower amounts of boundary ambiguity. Responses to these latter items must be reversed and recoded *before* summing across items to obtain a total score. For example, an answer of "5" would change to "1".

SCORING

An individual's boundary ambiguity score is simply the summation of responses across items,

Each scale has its own specific instructions for scoring:

SCALE #1: BOUNDARY AMBIGUITY SCALE FOR WIVES OF MIA MEN

1. Reverse and recode items 1, 2, 6, 8, 11, 13, 15
(1=5) (2=4) (3=3) (4=2) (5=1)
2. After recoding, total boundary ambiguity score is the sum of all individual items.

SCALE #2: BOUNDARY AMBIGUITY SCALE FOR WIDOWS

1. Recode items 1, 2, 3, 4, 12
(1=4) (2=3) (3=2) (4=1)
2. Compute total score by adding recoded items and all other items.

SCALE #3: BOUNDARY AMBIGUITY SCALE FOR PARENTS OF ADOLESCENTS LEAVING HOME

1. Recode item 2
(1=5) (2=4) (3=3) (4=2) (5=1)
 2. Compute total score by adding recoded items and all other items.
-

SCALE #4: BOUNDARY AMBIGUITY SCALE FOR ADOLESCENT AND ADULT CHILDREN OF DIVORCE

1. Recode items 3, 11, 12, 13, 19, 21, 25
(1=4) (2=3) (3=2) (4=1)
 2. Compute total score by adding recoded items and all other items.
-

SCALE #5: BOUNDARY AMBIGUITY SCALE FOR DIVORCED ADULTS

1. Recode items 2, 9, 11, 17, 19, 20, 22
(1=5) (2=4) (3=3) (4=2) (5=1)
 2. Compute total score by adding recoded items and all other items.
-

SCALE #6: BOUNDARY AMBIGUITY SCALE FOR CAREGIVERS OF PATIENTS WITH DEMENTIA

Compute total score by adding all items.

INTERPRETATION

The higher the score, the more that respondent perceives his or her family boundary as ambiguous. At this time, information is being gathered concerning the interpretation of boundary ambiguity scores across varied populations. Norms must be established for each population studied. Currently, the best interpretation of scores is to examine within-sample comparisons, using central tendencies and measures of variation as well as correlations with other variables.

Given that boundary ambiguity is theorized as a *perceptual* variable, one that varies within cultural, community, and familial contexts, the authors of this publication are eager for more empirical findings from studies with many populations, including those experiencing different types of loss, and those with various ethnic and socio-economic backgrounds.

The best guide to understanding and interpreting boundary ambiguity scores and to applying the construct in clinical/intervention settings is an

integration of data from studies of varied populations, including those experiencing ambiguous and clear-cut losses. This publication is a beginning toward that end.

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1. The first part of the document is a list of names and titles, including the names of the authors and the titles of their works. This list is organized in a structured manner, likely serving as a table of contents or a reference list for the document.