SASB chapter from book:

Lorna Smith Benjamin (2018) Interpersonal Reconstructive Therapy for Anger, Anxiety and Depression: It's about broken hearts, not broken brains.

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Chapter 3: SASB, the Rosetta Stone for IRT Case Formulation and Treatment Models

Structural Analysis of Social Behavior (SASB) is a well-validated model for describing interpersonal and intrapsychic interactions in ways that are useful in the clinic as well as in research. Data are gathered by using SASB based questionnaires (Intrex) to assess a rater's views of self and others (Benjamin, 2000) or by SASB coding that provides objective observer ratings of video of psychotherapy or other interpersonal situations of interest (Benjamin & Cushing, 2000). These SASB methods are theory- neutral and have been used for assessing aspects of a variety of therapy approaches such as Emotion Focused therapy (Greenberg et al., 1993), Supportive-Emotional (SE) Therapy (Crits-Christoph et al., 1999); and Psychoanalytic psychotherapy (Junkert-Tress et al., 2001). Barber and Crits-Christoph (1993) showed that Supportive-Emotional therapy, which uses SASB to help describe Core Conflict Relationship Themes, is among the psychodynamic case formulation methods that have good inter-judge

reliability, internal consistency and content, predictive, and concurrent validity. Reviews of a variety of other clinical and research uses by others of SASB appeared in Benjamin, 1996; Benjamin, Rothweiler and Critchfield, 2006; and in Constantino, 2000.

Use of SASB-based concepts and data has been central to the creation and validation of the IRT case formulation and treatment models and the natural biology that supports them. A simple example of how it can test theory appeared in Figure 2.2 where correlations between SASB ratings of behavior and standard ratings of anger, anxiety and depression in a threatening situation showed distinctive patterns connecting these affects (A) and behavior (B), as required by the natural biological concept of C1AB links discussed in chapter 2.

Some readers may not be comfortable with the level of detail and quantity of data in this chapter. They are invited to skip to chapter 4, knowing that evidence is available here (and in selected places throughout this book) that uses SASB to validate concepts foundational to the IRT case formulation and treatment models.

The SASB Models

INSERT FIGURES 3.1,3.2, 3.3 about here

Two versions of the SASB model respectively appear in Figures 3.2 and 3.3. Each is built on the 3 underlying dimensions that are pictured in Figure 3.1. They are (1) attentional focus, represented by the stick figures (2); affiliation, represented on the horizontal axis in figures 3.2 and 3.3 as well as in 3.1; and (3) interdependence that is represented on all models by the vertical axes. The most complete SASB model appears in Figure 3.2 and is called the full model. Note that it has 3 planes that respectively represent transitive focus on others (pictured in Figure 3.1 by the first stick figure); intransitive focus on self (pictured by the second stick figure); and

transitive focus turned inward (called introjection and pictured by the third stick figure.). For all models, the horizontal axis ranges from extreme hostility on the far left through zero to extreme friendliness on the far right. The vertical axis ranges from enmeshment (Manage, Control 140 or Yield, submit, give in 240 or Control, Manage Self 340) at the bottom upward through zero to complete independence at the top (120 Endorse Freedom, or 220 Freely Come and Go or Happy Go Lucky, 340).

SASB Based Dimensional Analysis of Interactions

An event, such as mother saying to her son in a matter of fact way: "You are stupid" is coded (i.e., dissected into the underlying dimensions) first by identifying the person to be coded, called X (mother), and then identifying the person with whom X is interacting, called Y (son). Three steps follow: First, determine X's focus ("You are stupid" is a transitive action directed toward Y). Next, identify X's affiliation (The remark clearly is hostile but not extreme; say -3 units on the horizontal axis shown in Figure 3.1). Then identify interdependence (the statement is quite controlling; say -6 units on the vertical axis in figure 3.1). Summing up: by the rules of plane geometry, "you are stupid" is coded at point (-3, -6) at about 6: 35 o'clock on the top (transitive) plane of Figure 3.2. The name for the position is 136, Put down, act superior. It is transitive action that is moderately controlling and somewhat hostile. The number 136 indicates the event is on the first plane (1 = transitive), in the 3rd Cartesian quadrant (Figure 3.1), the 6th subdivision. These "codes" provide precise descriptions of interactions in terms of the underlying dimensions and make it easier to identify the predictive principles, discussed later.

Comparing the Full and Simple Models

The simplest version of the SASB model is the one word model, shown in Figure 3.3. Events are coded by the same dimensional analysis except the subdivisions on the axes are at larger

intervals (labeled -2, -1, 0, +1, +2 for the horizontal and vertical axes). Rather than representing focus by planes, focus appears in the one word model as print font. **Bold =** transitive focus; Underlined = intransitive; *Italics* = transitive action turned inward; i.e., introjected. On this model, "You are stupid" is coded transitive (**Bold** print), moderately hostile (-1) and moderately controlling (-1). The vector (-1, -1) on Figure 3.2 is located at 6:38 o'clock at the point labeled **Blame.** In this example, the full model version of this event is Put down, act superior and conveys that there is more control than attack in the message compared to **Blame** that covers a broader area of possibilities and sums up with a name that implies control and hostility are present in equal measure.

The full model (associated with a long form questionnaire) is best for fine grained analysis of complex situations requiring maximal precision. The one word model (associated with short or medium form questionnaires) is best for quicker, "ball park" analyses. Some situations require such fine-tuned distinctions; others do not. Naturally the one word SASB model is easier to use. The differences between the full and one word versions might be illustrated by comparing the full model to determining the precise location of the plane with a compass and an altimeter while the simpler judgments using the one- word model might be illustrated by naming locations according to a nearby city or other such landmark. The less exact judgments are easier to understand and often "good enough." On the other hand, there are situations where the more exact differentials (as in instrument landing during a fog) are important.

Measuring relationships in terms of SASB models

In the observer coding system, interactions are dissected by dimension as described above to select a code or codes that best describe each interaction. In all questionnaires, items appear in a randomly determined order and the rater gives each a score between 0 and 100 to describe

aptness and frequency with which the item applies, with 50 marking the boundary between false and true. While writing items for the SASB Intrex questionnaires (and providing interpersonal detail needed for making objective observer codes), their structure was assessed by naïve judges who rated them for the degrees to which they reflected the underlying dimensions. Errors were corrected by revisions and the new versions were tested with a new sample of judges. That process continued until judgements generated a reasonable facsimile of the models. More exacting comparisons of theory and data, including measures of angular placement and vector lengths, were provided in independent samples collected and analyzed by Rothweiler (2004). After the structure of items was confirmed by dimensional ratings, the SASB questionnaires and associated coding system were ready for clinical and research uses.

Gathering data using the real- time observer codes is more difficult but do reflect objective rather than subjective perspectives. Comparing them can be important. For example, Humes & Humphrey (1994) showed that adolescent females in family therapy rated their parents' interactions with them more accurately than did the parents. The objective codes also provide information about sequences that can have powerful causal implications. SASB program Markov, explained clearly in Benjamin, 1979b, can be used to describe sequential interactions with family in the head ("superego") and, for example, demonstrate that current hostile interactions with attachment figures can be followed immediately by increased suicidal ideation (Benjamin,1986). Skowron et al. (2013) have used program Markov to show that maltreating mothers are calmer (feel safer) when their child is submissive while trying to complete a difficult task; by contrast, normal mother are calmer when their child is appropriately engaged with the task on his/her own. That study is critical to Bowlby's statement that attachment behaviors need to be accompanied by appropriate support for autonomy.

Whether the measure is by objective codes or by ratings on questionnaires, the data reflect interactions in specific relationships such as: my spouse, me with my spouse. my son; me with my son. Questionnaire items can easily be used to assess different relationships in different states and times. For example, "Mom and me when she had a boyfriend" versus "Mom and me when she didn't have a boyfriend" was important for Jasmine, whose mother attended intensively to Jasmine when mother was getting another divorce, but mostly ignored her when mother was occupied with a new paramour. One result was that Jasmine as an adult was terrified to be "un-paired" and this seriously distorted the way she related to her partners. The Standard Series usually provides and good overview of key relationships. It includes ratings of introject at best and worst; relationship with significant other at best and worst; relationship with mother when age 5 to 10; relationship with father when age 5 to 10; mother with father and father with mother when age 5 to 10.

Informal (subliminal) uses of SASB coding

"Informal" SASB codes, combined with principles from natural biology useful in sharpening clinician's work with therapy process and content. For example, sometimes in therapy, parents want to discuss their relationship with a child. Given there is no evidence the child is seriously disturbed and needs to be in his/her own treatment, simple discussions of the dimensions of secure base interactions can be very helpful to the parent and consequently, the child. Suppose a mother worries about a recent dust up with her 5 year- old son (Sammy) because he insisted on wearing a light jacket when going outside to play with a friend on a cold day. The therapist asked for description of the event and Mother offered: I said: "Jack's here and it's time for you to turn off that TV and get outside for some fresh air, so put on your big coat right now." Her message would be coded as **Control** on the one word model and Manage, control 140 on the full model.

Sometimes it is necessary to use such raw control, but not usually under peaceful conditions. If he blew up in response to that, Sammy might be struggling with differentiation and resisting control as he explores having a separate self. Maybe the coat was the medium for Sammy's declaration of independence. Therapist and mother might consider what would have happened if she said: "Jack is here and wants you to come out and play in the snow. Does that sound good? An important part of that message (not the only) would be 116, Carefully consider (his separate wishes). If the son agrees, then mother would say: "You will need your big coat and mittens today because it's really cold outside, OK?" Here, mother offers 144, Sensible analysis which is adjacent to 143, Protect, back up. If secure, Sammy is likely to respond with 244, Accept reason. But maybe he would have said: "I'd rather watch TV." In that, he asserts (216, Put cards on the table). Considering his perspective while holding firm with her support of peer play, mom might say "I know. We can record the rest of that program so you can catch up with it later if you still decide to use today's (allotted) TV time that way? Right now, it could be lots of fun to play in the snow now with Jack" That would include the code 145, Constructive stimulate. And the exchange would illustrate what Bowlby called "the dance between dependence and independence" That "conflict" is difficult to negotiate, even to understand. Without autonomy, self is compromised. Without control, self is undisciplined and asocial. Those patterns are shaped by many thousands of daily micro interactions such as this one. In this example, mother's dance is about "managing" the conflict between her son's independence via peer play versus passivity supported by TV watching. That simple exchange could go in many different directions, each one a version of the same struggle. Each should be guided by offering the child secure base conditions defined as moderate amounts of control in support of developing autonomy. As always, context matters: Under extreme conditions, extreme parental behaviors (e.g., absolute

control) can be required to provide safety and to facilitate development of a strong and sociable self.

Feeling the Structure of the SASB models

Insert TABLE 3.1A and 3.1B HERE

If a clinician wants to build skill in recognizing patterns in the therapy process and content at the level of primitive brain, then repeated scanning of Table 3.1 can help. It is divided in two sections. Part A covers hostile autonomy on the left (shaded); its opposite, friendly enmeshment is on the right (no shading). Part B covers hostile enmeshment on the left (again hostility is shaded) and its opposite, friendly autonomy is on the right (no shading). Developing the ability to sense/feel those 4 categories, friendly and hostile enmeshment or friendly or hostile differentiation is a big step toward instantaneous recognition of patterns that matter. Armed with that skill, the clinician is less likely to miss differentiation failure, a problem that almost always is involved in one form or another in affective and some other disorders.

Another valuable exercise is to brush up on the meanings of "transitive" and "intransitive" by scanning and comparing columns with those headings. Early in the development of SASB, people complained those grammatical words were "needlessly complex," and so the words Other and Self were used to distinguish transitive and intransitive focus. That works much of the time but not always. For example, "You are the love of my life" might look like focus on other because of the word You; but the main message is about the speaker's state of being, i.e. intransitive. In sum, the words transitive and intransitive are more precise than and preferable to Other and Self. Another advantage is that the words transitive and intransitive are not easily confused with the descriptions: I/me or He/She.

A second useful exercise that contributes to intuitive use of the SASB model is to scan Figure 3.2, the full model, by starting at any point and progressing stepwise in either direction, continuing until returning to the starting point, i.e., going "full circle.[1]" That same path can be followed with greater intensity by taking a round trip (going full circle) through the phrases in Table 3, parts A and B. The "trip" through transitive items is marked by column labels T11, T12, T13 and T14 in Tables 3A and 3B. T1 means Trip 1. The second digit is 1 or 2 or 3 or 4 and marks successive steps in T1. Trip 1 begins with full model point 130 Annihilating Attack in the first row of Table A. Scan that column and then find T12 for the second step. Continue through steps T13 and T14, ending up at the starting point, 130 Annihilating Attack in Table 3B, last row. *Try to feel each step by imagining being in those positions in relation to important people you know.* Repeat the process for Trip 2 (T2), which is about intransitive items

Predictive Principles

SASB predictive principles flow from the mathematical logic of the models. They link members of a pair by matching them in terms of the underlying dimensions of interpersonal space as defined by SASB.

[1] That "round trip" illustrates circumplex order, introduced to Psychology by Guttman, (1966), whose main point was to explain that factor analyses can use fewer numbers (i.e. Scores on however many factors were extracted) to describe an individual. Items within a 2-space defined by the first 2 factors appear in circle. SASB is the shape of a square because its coordinates are based in simple plane geometry rather than polar coordinates that define a circle in two dimensions.

Complementarity

Complementarity happens when two people are matched on the affiliation and interdependence dimensions, with one person transitive and the other, intransitive. For example, as Sammy agreed to go outdoors, he matched mom's coordinates. His 244, Accept reason (+5, -4) matched her Sensible analysis, 144 (+5, -4). Her transitive 116 Carefully, fairly consider (+3, +6) matched his intransitive 216, Put cards on the table at (+3, +6). Complementary works both ways: transitive to intransitive; intransitive to transitive; parent to child; child to parent; husband to wife; wife to husband. Going from transitive to intransitive seems familiar. If one person **Controls**, the other is likely to Submit. If one person **Ignores** another, the other will Wall-off. Predicting from intransitive to transitive seems less obvious. Nonetheless, the reverse is true: if one Submits, others are more likely to **Control**. If one Walls-Off, others will **Ignore** him/her. If a person walks fearfully (Recoil) through a dangerous neighborhood, he/she is more likely to be **Attack**ed than if he/she walks confidently (Separate). Similarly, when Amy (chapter 1) stopped appeasing family members, they gradually stopped abusing her. The power of intransitive to draw transitive complementarity, like all other predictive principles, is adaptive in an evolutionary sense. It draws parents to infants as well as infants to parents. It also, as noted above, draws predators to victims; like sexuality, that principle is adaptive for the species but irrelevant or worse for individual's survival. The prevalence of Complementary and the simplicity of its geometry tempts one to speculate about a mechanism for it. Earlier, the idea of comparability to the inverse square law in physics was suggested.

Similarity

In contrast to the stability in complementarity, similar pairs (Same focus, same location on affiliation and interdependence axes) can repel and make unstable matches, especially in the

region of interdependence (lower half of Figure 3.2; Quadrants III and IV in Figure 3.1). Consider what happens when one dominant person interacts with another; Or what happens between two blamers, each certain they know what is right. How about between two submissive persons ("After you, Alfonse")?

Similarity in the region of hostile independence also is aversive but not so obvious. Similar members of a pair engaged in hostile autonomy may not notice each other so repulsion is not detected. Similarity in the region of friendly independence likely is unstable because it is not easy to have both members of a dyad **Affirming**. Or Disclosing. On the other hand, the friendly independent pair is stable if they complement each other with one transitive and the other intransitive. For example, sometimes one **Affirms** the other Discloses. Then they exchange positions. Such time dependent complementarity will keep them together even as they each have baseline positions of independence.

Introjection

Introjection is perhaps the most directly related to affective symptoms. It represents means treating yourself as you were treated by an attachment figure. If Dad **Blame**d you, *Self-Blame* is likely. Joseph illustrated that. If your spouse **Affirm**s you, *Affirming Self* is a likely result. Figure 4.2 shows very clearly that parental transitive action is directly parallels patterns in the introject. The introject, in turn, is very closely related to the threat affects: anger, anxiety and depression.

Opposition

Opposites have the same focus but reverse the signs on the vertical and horizontal axes. That places them 180 degrees apart on the same plane. Columns 2 and 4 and columns 3 and 5 in

Tables 3.1 A and B respectively describe opposites. Taking opposite positions can be useful in therapy when modeling or encouraging better options. A common example is for the therapist to listen (**Affirm**) rather than **Blame** or **Control,** which may be what the patient expects on the basis of his/her early history.

Antithesis

Finally, there is the principle of Antithesis, which is the Complement of the Opposite. Antithetical points are different in every possible way. In Tables 3.1A and B, antitheses are shown in columns 2 and 5 and columns 3 and 4, respectively. For example, the antithesis of 223, detach, weep alone is 143, Protect, back up. Julie's situation is an example of antithesis. She had a severely depressed mother who was virtually inaccessible to her (Wall off). Julie tried to change mother by taking care of her in every way possible (**Protect,** the antithesis of Wall Off.) to no avail. She did the same with her children, explaining: "My children are not going to have to suffer because of an absentee mother as I did." Her antithetical indulgence and overprotection of her children unfortunately had its own unintended problematic effects on them because the greatest risk from overindulgence of children is narcissism and entitlement (i.e., introjected excessive self-love; inappropriate expectation of excessive submission and over the top nurturance).

Evidence Based Tests of SASB Predictive Principles

INSERT Figure 3.4 about here

Group means for complementary sets of 8-point profiles based on SASB Intrex short form assessments of "father's transitive focus on me" and "my intransitive position with father" appear in Figure 3.4. The top panel is from a normal sample of 58 raters collected by C. Karpiak studying reliability of SASB short form at an eastern USA university. It is important to know

that the SASB Intrex short forms only use 1 item per model point. That is an extraordinarily demanding standard since most psychological tests use multiple items to assess a given concept. Yet comparable figures based on SASB medium or long forms show that same patterns. The bottom panel is from 179 German patients (Mestel, 2012) with an ICD-10 diagnosis of Anakastic personality disorder (Obsessive Compulsive Personality disorder in DSM5, chosen here because it describes Joseph, whose case is cited again in this chapter.)

In the normal sample, parent transitive and rater intransitive profiles using the SASB short form appear exactly as predicted by complementarity theory with rho between parent transitive and rater intransitive 8-point profiles = .91, $p < .01$. The behaviors rated with average scores of 50 or more, indicating they are "true" were **Affirm, Active Love and Protect.** They are SASB model points that correspond to what Bowlby described as Secure Base conditions[2]. These conditions are complemented by Trust, Reactive Love and Disclose in the normal sample. If the secure base conditions are introjected, they appear as *Self-Affirm; Self-Love; Self-Protect*. All three of these secure base points are friendly, with moderate levels of independence and moderate levels of interdependence. As noted in chapter 2, secure base is very important in sponsoring normal, adaptive behaviors and defining therapy goals.

In the patient sample shown in the lower part of Figure 3.4, as in many other patient samples, profiles peak with true ratings at fathers' transitive **Control** rather than at **Protect** as in normal samples. In addition, the profile for patients shown in figure 3.4 is displaced in the friendly

[2] Also noted in chapter 2, they are SASB codes of the behaviors of mother/ child interactions that had been formally classified as Secure Base as defined by Bowlby.

direction relative to fathers. Spearman's rho between fathers and patients in the figure was only .67 for the Anakastic sample; it was even lower for some other disorders (such as rho = .37 for an Histrionic group, also from the large German sample). This discrepancy always is in the direction of patients perceiving themselves as friendlier than fathers; it taken as evidence that supports the natural biological principle that the young reflexively attach to caregivers no matter what is offered.

Another method of testing the validity of predictive principles is to use Canonical Correlations between sets of 8-points. That is illustrated here for complementarity using the total 14,797 German patients from Mestel, 2012. All Canonical Rao between parent and rater profiles were significant at P <.000. Principles of complementarity, similarity and introjection (the most common connections) were tested and each yielded p <.000 with all Betas (weighting individual SASB model clusters) contributing to the prediction at p <.000. According to this and other methods, complementarity with father is the most powerful predictive principle (RAO F: = 520,438; Similarity was next, with RAO F = 192.152; Introject was last with RAO F = 41.505. These relative frequencies likely are affected by interactions such as gender, psychiatric diagnosis and culture.

With such large samples, highly significant results can be obtained even for weak effects. That means that no matter how powerful the effect, the reported trend does not represent all individuals in the sample. That is one reason, reports of SASB studies are at the level of N=1 whenever possible. A formal method for looking at predictive principles within individuals is to report selected Pearson r among an individual's 8-point profiles. The parameter is called within r. If within r equals +-.71 or more, the associated predictive principle is said to be present. Within r

does not test “significance” but it does indicate that at least 50% of the variance between the two 8 point sets (e.g. father transitive, rater intransitive) is shared.

INSERT FIGURE 3.5 about here

To review: the 4 aspects of each relationship are: Him/her with me: (1) transitive and (2) intransitive; I/me with him/her (3) transitive and (4) intransitive. Complementarity of one type is assessed by comparing (1) with (4). Another type is (3) with (2). The difference is in who is transitive and who is intransitive. Figure 3.5 presents each within r for the Father with me/ Me with father from the Wisconsin sample of 183 psychiatric inpatients rating the Long Form for “when I was aged 5 to 10”. Data in Figure 3.5 provide evidence that complementarity between father transitive: rater intransitive reached the criterion level of .71 for 51.9% of the patients. None met criterion for antithesis. In the bottom panel, 36.7% of raters described similarity to father and 3.7% showed opposition.

Here, and in general, complementarity is the most common of the 4 predictive principles. It makes sense that complementarity would be the most common predictive principle because, by involving compatible matches on all three dimensions (affiliation, interdependence and reciprocity of focus), it supports all features of attachment, which is foundational to primate adaptation. All other predictive principles involve one or more mismatches in underlying dimensionality. The weakest predictive principle is antithesis and it involves discrepancy in every possible dimension (between planes, sign on affiliation axis and sign on the interdependence axis). To repeat: while complementarity supports attachment, antithesis opposes it in every way. Nature is successful in optimizing adaptive patterns of attachment.

Criticisms of SASB predictive principles

Long ago (Benjamin, 1994), I wrote an invited "target article" about SASB, followed by critiques from 6 colleagues. Some were highly supportive, some neutral and some, downright hostile. One influential critic implied there are so many predictive principles, one is bound to turn up on a random basis. He wrote: "…A specific hypothesis regarding introjection might be refutable but not the SASB model from which the prediction was made, because if it isn't introjection, then it is complementarity. It if isn't complementarity then its imitative learning and so forth. It would be helpful if Benjamin would specify what findings would occur for the model to be proved wrong (pp. 330)."

The demonstration that follows shows that the predictive principles are confirmed in real data bases but not in random ones. That contradicts the critic's hypothesis and proves it wrong. If the random distribution did "confirm" the predictive principles, that would prove the SASB model wrong. Here is the test: I created 14 samples of 1000 "subjects" with means and standard deviations set to those for actual SASB data. Then I wrote program CircumSteps to assess the predictive principles in actual data sets and in the random data sets and compared them. Illustrative results for 184 inpatients, reported in Figure 3.6 reveal strong complementarity in real data sets and none at all in the random data sets. Other predictive principles can be computed by this program simply by selecting data that represent the principle of interest.

INSERT FIGURE 3.6 ABOUT HERE

For interested readers, here are the details of how the program works. To test complementarity, an 8 x 8 matrix of correlations between mothers' transitive focus on the rater (on rows) and the raters' intransitive responses to mother (on columns) is compared to an 8 x 8 matrix of theoretical values that represent a perfect circumplex. If complementarity is perfect, the 8 points

on the diagonal (E.g. Rater Disclose complements Mother **Affirm;** Rater Trust complements Mother **Protect;** Rater Sulk complements Mother **Blame**) will average to 1. Circumplex order is tested by assessing whether all of the remaining correlations match predictions defined by a theoretical perfect circumplex matrix. If, for example, opposite points are matched (e.g Mother **Blame:** Rater Sulk; Mother **Protect:** Rater Wall Off; Mother **Blame**: Rater Disclose), the 8 correlations should average to -1. And the average correlations at every step between exact matches (+1) and opposite matches (-1) will decrease or increase incrementally as prescribed by the perfect circumplex matrix.

The first line in Figure 3.6 presents the average r for the diagonal (exact match between mother transitive and rater intransitive) followed by average r at each of 7 successive steps away from the diagonal[3] until arriving at the diagonal again. The second line presents the same information for the theoretical (perfect circumplex) model. Data and theory in these two lines are compared using nonparametric rho. Results show strong complementarity (rho = .98) that conforms to circumplex order. Random data do not replicate this result (rho = .09).

[3] Technical note: The data matrix, unlike the theoretical one, is not necessarily symmetric (e.g. data in cell for Mother point 1, Rater at point 2 is not = Mother at point 2, Rater at point 1). That means the process of comparing observed to perfect theoretical order has be performed for steps 1 to 7 from the diagonal within a fix set of referents such as Mother transitive and Rater intransitive.

Using an entirely different method to test copy processes (i.e. various predictive principles generalized from childhood to adult patterns[4]), Critchfield and Benjamin (2008) compared actual data to random scrambling of those same numbers. Copy processes: identification, complementarity and introjection appeared in inpatient, outpatient and normal samples far more often than in the random scramble condition.

Finally, instead of using between-subjects correlations as is conventional, that same strategy was applied to within individual correlations. Again, the copy process emerged significantly more often in real data sets compared to randomly scrambled sets (Critchfield and Benjamin, 2010). These peer reviewed studies could have disconfirmed the predictive principles and copy processes by finding evidence that they "exist" in random data sets or in real data sets scrambled to random order. To the contrary, the predicted order was never seen in under the random conditions and always were seen in the real data sets. The predictive principles are not artifacts of faulty reasoning or methods. The unfounded, dismissive opinion about base rates for SASB predictive principles that appeared in an edited, peer reviewed journal was unwarranted.

Another criticism of the SASB model is that factor analytic reconstructions of the model often assume the shape of an ellipse rather than a circle. That is true. The affiliation axis is longer than the interdependence axis in data sets provided by raters describing themselves and others. Ellipses also are generated by factor analysis of items that assess rater self-descriptions in terms of models of affect (Examples appear in Park, 2005). An informative in- depth analysis of

[4] For example, mother transitive is compared to rater intransitive in this illustrative test of complementarity. A comparison of rater intransitive in relation to mother (in childhood) to rater intransitive with spouse (in adulthood) would test copy process recapitulation.

this and other issues was completed by Rothweiler (2004). Rather than indicating the SASB model or the affect models are flawed, the result likely means that affiliation, whether in relation to behavior or affects, carries more variance than does the vertical axis assessed by the second factor.[5] The orbit of the earth, also expected to be a circle, turned out to be elliptical as predicted by Newton's inverse square law that provides (basically) that attraction varies as the inverse of the square of the distance between them. Quite possibly attachment is that same: the greater the affiliation, the greater the attraction, meaning the attachment axis will carry more variance than the interdependence axis, resulting in an ellipse.

Then there is the criticism that SASB is too complex (e.g., Benjamin, 1994, p. 319 and "unorthodox" (ibid., p. 320). If science must be orthodox, there is little chance for growth. If SASB is needlessly complex the criticism is valid. But if the fine resolution in Figure 3.1 and the nature and relevance of supporting evidence and the clinical applications are sound, the complaint of needless complexity is not valid. Every time I hear it, I wonder how many Physics or Chemistry students or professors would complain that a theory is "too complex" and have that be accepted as a valid criticism regardless of supporting evidence.

The SASB model is reliable and has substantial validity (Benjamin et al., 2006) and yet it is radically simple relative to the full range of situations to which it can be applied. For example, ultimate complexity is posed by what Bateson et al 1956 described as a "double bind." SASB codes can describe that (Humphrey and Benjamin, 1986) in ways that correspond well to what

[5] Results for SASB and also for affect models suggest a rotation off the horizontal. For SASB, the "tilt" may be secondary to joint influence of the two developmental goals mentioned in chapter 2: attachment (intense levels) and autonomy taking (moderate levels).

originators claimed it was, and that make sense to experienced clinicians, especially family therapists. Complex coding also can help describe and understand mechanisms of "brain washing" portrayed in the Manchurian Candidate (1962); Patty Hearst's "conversion" (1988), and in Shakespeare in the Taming of the Shrew (1988). This version of brain washing is formally known as The Stockholm Syndrome (medical dictionary.thefreedictionary.com).

SASB Tests Major Features of IRT Case Formulation and Treatment Models

This section focuses on uses of SASB to test major attributes of the IRT case formulations that guide every treatment intervention.

Use of SASB Defines and Assesses Normal as Secure Base and as Therapy Goal Behavior.

The idea that secure attachment is described by high ratings in the region described by SASB as **Affirm**/ Disclose, **Active Love**/ Reactive Love and **Protect**/ Trust has been confirmed for adults by others (Pincus et al., 1998) as well as for mothers and toddlers (Teti et al., 1995). Pincus et al. (ibid. 1998, p.206) wrote: "The addition of interpersonal descriptors to the assessment of global attachment constructs adds precision to the description of "internal working models, increasing sophistication of attachment concepts for relational diagnosis and assessment." In IRT, secure base as described by SASB defines Normal, and it is the therapy goal. That positive description of goal behavior guides therapists in the effort to build adaptive affects and behaviors more than focusing on symptom reduction that, in effect, defines normal as not "not-normal."

Anger, Anxiety and Depression are Natural Responses that Help Adapt to Threat.

Anger, anxiety and depression have predetermined functions within C1AB links. Again, C1 = primitive brain perception of threat or safety; A = affect triggered by that perception and B = behavioral patterns predisposed by that affect. Anger has the function of coping actively with

threat by moderating control or distance. Anxiety mobilizes efforts to cope with threat that may resolve in any direction: fight, flight or surrender. And depression is an adaptation of last resort, reducing threat value by giving in and/or withdrawal. That interpretation was discussed in chapter 2. Supporting evidence based on SASB was provided in Figure 2.2. All three threat affects were highly correlated with interpersonal distancing. Anger also was correlated with control. Depression inhibited friendliness and self-definition. The magnitudes of correlations between Anxiety and various interpersonal behaviors supported the hypothesis that it is activated when the individual is "in between" anger and depression, conflicted about whether to downplay self, withdraw, hide (depression) or fight (anger) to prevail or repel/escape. Figure 3.8, to be discussed below suggests that connections between patterns with attachment figures and threat symptoms can be affected by culture.

Threat, Symptoms (Disorders) and Autoimmune Disorder

If an attachment figure naturally is taken as safe haven by mechanisms discussed in chapter 2, but actually is a threat, then the child is exposed to chronic threat by virtue of frequent contact. In addition, attachment to an abusive figure involves automatic learning in the primitive brain records maladaptive details such as "Beatings are common and must be accepted without protest;" and/or "Betray your mother and your religion and be my sexual partner;" and/or "I am condemned to eternal suffering." Such attachments to a threatening figure, in effect, provide the basis for a form of autoimmune disorder. Normal defenses against threat are turned against the self, sometimes with deadly results.

INSERT FIGURE 3.7 ABOUT HERE

The central role of perceived threat from caregivers is underscored by data in Figure 3.7 that link number of disorders to perceptions of threat and safety in relation to attachment figures. The

dependent variable is the number of ICD-10 diagnosed disorders in the HELIOS Klinik recorded as F3 or F4 disorder excluding F3 Bipolar disorder and F4 General Personality disorders[6]. The sample therefore included 5 disorders: F3 Depression; F4 Anxiety; F4 Post-Traumatic Disorder; F4 Somaticizing disorder; or F4 Eating disorder. Greater comorbidity is taken as a measure of severity of disturbance (ref comorbidity). At the clinic, staff were instructed routinely to make as many diagnoses as could be identified. Diagnoses are not up to German standards for "Research Quality[7]" but the frequency of comorbid diagnoses suggest that in the matter of thoroughness, they represent the best of clinical standards for diagnosis. The intent to cover all possible issues is underscored by the fact that patients also were diagnosed by the European OPD diagnostic system. According to the OPD system manual "… seven reliability studies (of OPD) have been conducted in the German-speaking countries with scale kappas lying between .50 and .70. These values are as robust as those of any of the ICD-10 categories (ref). "

The independent variable in Figure 3.7, perceived threat from an attachment figure, was assessed by scores on a SASB short form item describing **Attack**: "Without thought about what might happen, father (or mother) wildly, hatefully, destructively attacked me." Perceived safety was measured by SASB version 1 short form item **Protect**: "With much kindness, father (or

[6] Bipolar and Personality disorders were excluded from this F3 and F4 collection because they often are considered to be based on unique mechanisms. IRT theory is not consistent with that, that view was used for this particular analysis to be more in line with contemporary beliefs. Further analyses including these and other diagnoses will be included in subsequent analyses and reported elsewhere (e.g., Benjamin, Critchfield, & Mestel, in preparation).

[7] Personal communication, Robert Mestel (2013).

mother) taught, protected, and took care of me." The dependent variable is the percent of patients who rated these items at 50 or more, meaning "true."

Results from 14,829 patients are simple and clear: inspection of the figure shows (a) as the average ratings for **Attack** increase, so does the number of disorders per individual; and (b) as average ratings for **Protect** increase, the number of disorders per individual decreases. Perceived threat from attachment figures is powerfully associated with number of affective disorders, while perceived **Protect**ion (a secure base condition) is a buffer. More fathers were rated True (50 or more) for the **Attack** item, while more mothers were rated True for **Protect**. This theme of a direct connection between perceive threat from attachment figures and affective symptoms will be developed in depth in Benjamin, Critchfield and Mestel, in preparation.

The Impact of Culture on Symptoms

Different cultures have different definitions of what to fear and how to be safe. That reality has sometimes brought controversy and confusion to efforts to develop diagnostic systems. An example might be how to diagnose obsessive compulsive personality disorder when a person has been raised in a culture that places high value on compliance, control and perfection above all else. If such a pattern is an ideal in the culture, should it be diagnosed?

SASB based data suggest that cultural differences in interpersonal patterns do exist. Florsheim (1996) used SASB to identify cultural differences in practices regarding letting adolescent sons go out in Chicago in the evenings. According to IRT theory, cultural norms likely are affected by lessons from caregivers who practice them. Cultural patterns, just like familial patterns are "diagnosable" (targets of treatment) if they interfere with rather than support secure base and therefore are associated with symptoms. For example, Joseph (chapter 2) "overdid" his allegiance to his cultural value to be considerate of the needs of others. He felt he was without

recourse and defeated because he was so completely devoted to his impossible safety plan of anticipating and addressing needs of coworkers and friends as well as family before they knew they had them. His cultural value of consideration of others could support secure base behavior, but Joseph's interpretation of that norm was maladaptive and supported pathology.

INSERT FIGURE 3.8 ABOUT HERE

Figure 3.8 offers data that show culture can affect symptoms. The figure compares two samples of inpatients at University hospitals, each group having interpersonal patterns assessed by SASB and symptoms assessed by SCL-90R (Derogatis, 1983). One culture (shown on the left- hand side) was politically conservative and the other culture (on the right) was heterogeneous politically and ranked very high in the nation in levels of alcoholism (ref); that likely was facilitated by unabashed popularity of "partying."[8] The profiles have similar patterns, but fathers in the conservative culture showed markedly more **Control** (60) than fathers in the northern Midwestern culture (50).

Correlations between fathers' transitive behaviors and patients' levels of anger, anxiety and depression were affected by culture too. In the Midwest, hostility from fathers appears to have been copied by their children who became patients as adults. Identification with the aggressor may be experienced as a way to be safe in a culture that is relatively tolerant of such behavior but not in a culture that punishes anger. In fact, in the section of the Mountain West from which these data were gathered, overt hostility does violate a strong norm. Even differences of opinion are considered by some to be hostile and highly undesirable. In this setting, paternal hostility was

[8] Data for the Mountain West are from Smith (2002), while those from the northern Midwest are from the Wisconsin data base described in chapter 2.

correlated with anxiety and depression rather than with anger. A reasonable guess that accounts for these particular cultural differences in the impact of patriarchal anger is that children are likely to be punished for anger but given support and medication for depression and anxiety. Gender also affects expression of affects and related behaviors. More complete understanding of cultural impact on affects is important and requires additional study, starting with clinical interviews and surveys that assess family reactions to expressions of affects and relating that to symptoms, if present.

Formal Models Linking affects, behaviors and cognition

A formal model for Affect that parallels Behavior (SAAB) was proposed in Benjamin 2003/2004, Appendix to chapter 4. Using dimensional ratings as well as factor analytic reconstructions, Park (1995) explored the circumplex structure of two versions of the proposed affect model and assessed parallelism between them and the SASB (behavioral model) as well as models proposed by Russell (1980) and by Watson and Tellegen (1985). Park concluded: "… all models produced reasonably good to very good circumplex structure, particularly when ratings of self-reported affect in factor analyses were evaluated. There was strong support for the idea of parallelism between affect and behavior as all models evidenced rather good correspondence between affective states and social behaviors, point for point. This was true not only for the SAAB models that were developed specifically with the goal of parallelism in mind, but also with the extant affect models, which have historically been used to simply describe basic emotions that one might experience in everyday life. Correlations with measures of psychiatric symptoms indicated that the SAAB models were better able to predict relationships with symptoms of depression, anxiety, and anger than when using the extant models, suggesting that the SAAB models may be more useful clinically."

Internalized Representations regulate symptoms

Most of the SASB based data presented in this book rely on the idea that raters' scores reflect their perceptions and memories of their relationships with attachment figures. These perceptions are related to symptoms because perceptions more than "reality" drive affective and behavioral responses. The mechanism that connects interactions with attachment figures to affect regulation, as described, in chapter 2, is that children copy attachment figures under perceived conditions related to safety and threat. If parents offer secure base conditions, the child copies adaptive rules for safety and threat. Also noted in chapter 2, there are brain circuits that record representations of object, including living objects, and these circuits do have direct connections to affect regulators such as the HPA axis. The circuits representing caregivers, i.e., family in the head also can reactivate the original scene with all of its perceptual (C1), affective (A) and behavioral (B) components In effect, the internalized representations of attachment figures, first described by Bowlby as internal working models, are affect regulators.

If family provide working models, it is important to know whether patient perceptions of family interactions are accurate. Humes and Humprey (1994), cited earlier, reported that objective observer SASB codes of interactions involving an identified adolescent patient during a family conference agreed more with the patient's ratings than with the parental ratings. An ideal way of exploring the accuracy of perceived patterns would be to generate SASB codes by observers of video of parent child interactions taken at regular intervals from birth to adulthood compared to ratings generated by family members. If the SASB emotion scales (Park, 2005) were fully validated, self-ratings with them could be included. Because SASB Intrex Short and Medium Form items are at the 6th grade reading level, by the time the child reaches that age, the child's perspectives could be added to the data base. Comparing and contrasting these various

perspectives at different times could identify misperceptions when and if they occur. That surely would have useful implications about with whom and how to intervene in family work.

Gifts of Love (GOL)

In contrast to several cited examples of validity of copy processes, there is not much that directly confirms GOLs. The concept centers on subjective goals that inspire adaptive and maladaptive C1AB links. Nonetheless, a creative and informative assessment of GOL activity was provided in a series of 5 carefully done experiments by Sohlberg and Biergegard (2003) and Sohlberg, Claesson & Birgegard (2003). These investigators showed that a tachistocopic flash "Mommie and I are one" could increase symptoms of depression, whereas the control condition, "People are walking," did not. Several measures of similarity between subject and mother were used and related to depression. The role of SASB Intrex was to define the perception of mother during childhood under the heading of "relational schemas" that regulate affect and behavior (ibid, p. 303). That would correspond directly to "family in the head." Findings were complex, but results with SASB were simple and consistent with the idea that activated family in the head (e.g., mother) can activate related (e.g. threat) affects. For the "Mommie and I are one" condition, investigators reported: "higher correlations were found between SASB Intrex ratings of mothers and depression. In one case, the difference between groups was significant, $p < .05$" (p.305). "... in the groups exposed to the "Mommie and I are One" flash, the variance shared with depression (ibid, Table 1, p. 306) was large for Mother **Blame** and notable for **Ignore** and such associations were not seen in the control group." In other words, *when reminded subliminally of closeness to Mommie, individuals with internalization of a hostile Mommie got more depressed*. These effects persisted for at least 10 days. Sohlberg was so alarmed by the power of the effect, that he and Biergegard stopped doing the research.

Their results are not surprising. The tachistoscopic flash was a subconscious activator of the relationship with mother, which if threatening, led to depression. This is consistent with the idea that symptoms can be increased as a person experiences a primitive brain reminder of his/her relationship with a hostile attachment figure, activating the automatic "loyalty" to the maladaptive rules and values of that figure. Acting on that reminder is supported by a pathogenic GOL, a sense of closeness to and safety in relation to that figure.

McCarty (1997) did a study of marital conflict that yielded findings that confirm the construct of GOL in the here and now rather than in studies of sequences in memories. She performed sequential analyses of SASB codes[9] of marital interactions during a videotaped discussion of a conflict. Sequential analyses showed that wives classified as dissatisfied in the marriage mostly got friendly responses (consequences) from their husbands if they showed hostile submission (antecedent). In short, resentful surrender (Sulk) was wives' route to **Affirm**ation and love from husbands. This suggests that a specific maladaptive behavior in the wife can be "rewarded" by loving behavior in the husband during a conflict. That is the paradigm for maladaptive GOLs: one complies with what is rewarded by love and affection from an attachment figure whether or not it reflects secure base. McCarty (1997) demonstrated that GOLs can be detected in analysis of sequences of observed interaction as well as in sequential analyses of a therapy narrative.

Examples of Additional SASB- based Dissertation Studies of Psychopathology and Treatment

There are several other SASB dissertations by students who worked directly with me during my brief years as a dissertation advisor in academia after leaving the Department of Psychiatry in Wisconsin and before returning to clinical work in a medical center in Utah. Here are examples:

9 Using SASB software program Markov.

A study of the reliability and validity of SASB (Rothweiler, 2004). A parallel affect model (Park, 2005). Applications of SASB methods to studies of: personality disorder (Smith, 2002); alcohol abuse (Moore, 1998); impacts of child sexual abuse (Schloredt, 1997); pedophilia (Strand, 1996); drug abuse (Sandor,1996); marital conflict (McGonigle, 1994); internet based training about IRT case formulations (Davis, 2012); cross generational factors in cocaine abuse (Cushing, 2003; performance anxiety in athletes (Conroy, published as Conroy and Benjamin, 2001) and the impact of therapist affirmation (Karpiak, published as Karpiak & Benjamin, 2004), Hopefully, in the next few years, I will be able to support the authors in submitting many of these unpublished SASB projects for publication.

FIGURES

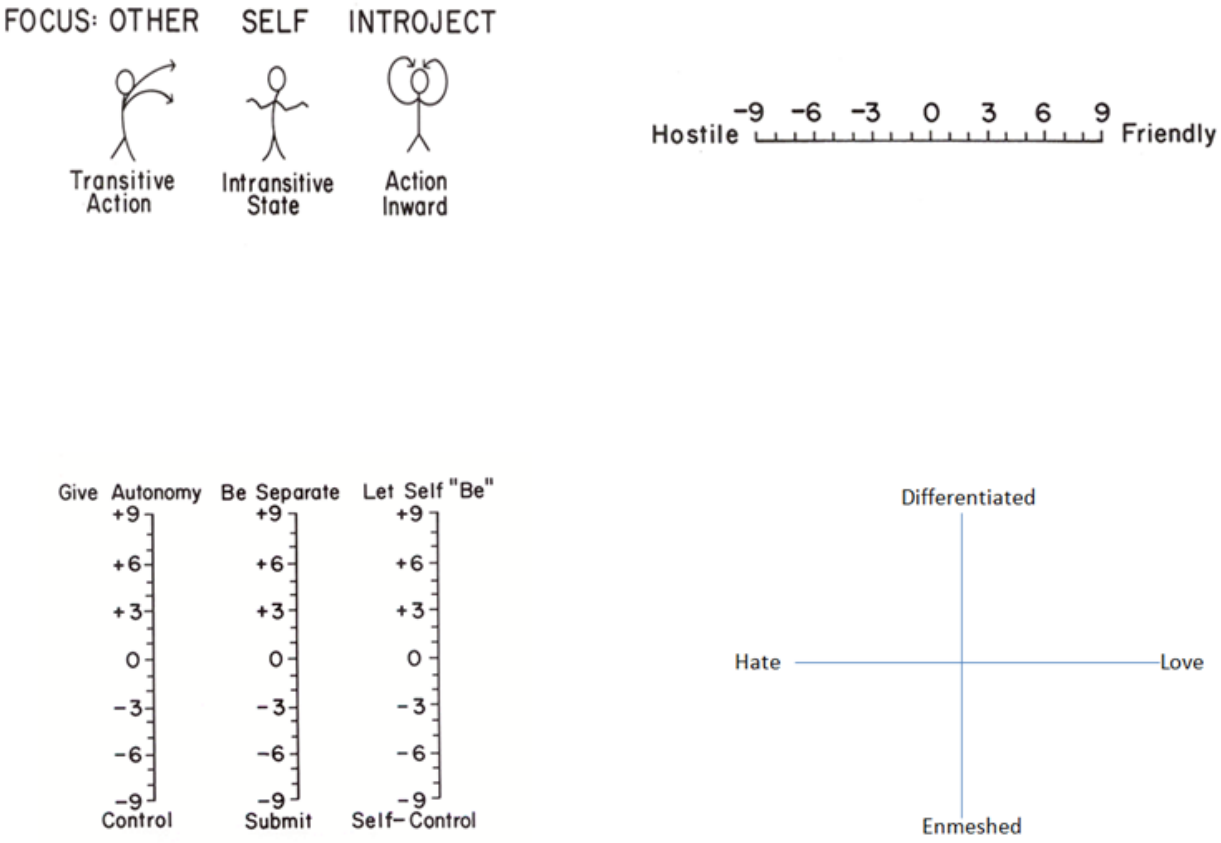
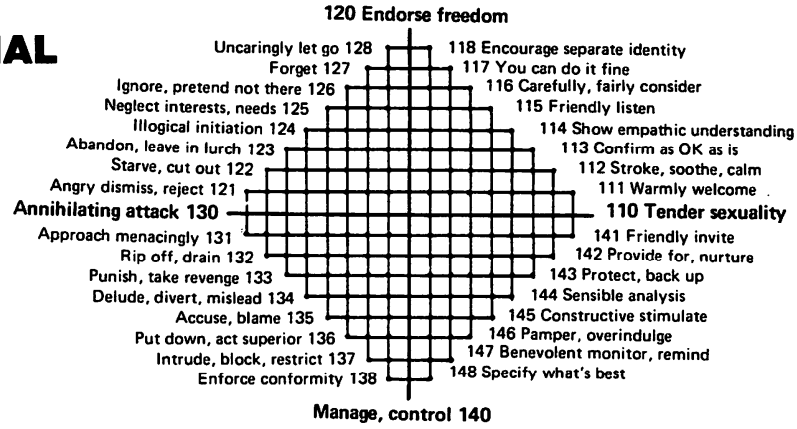
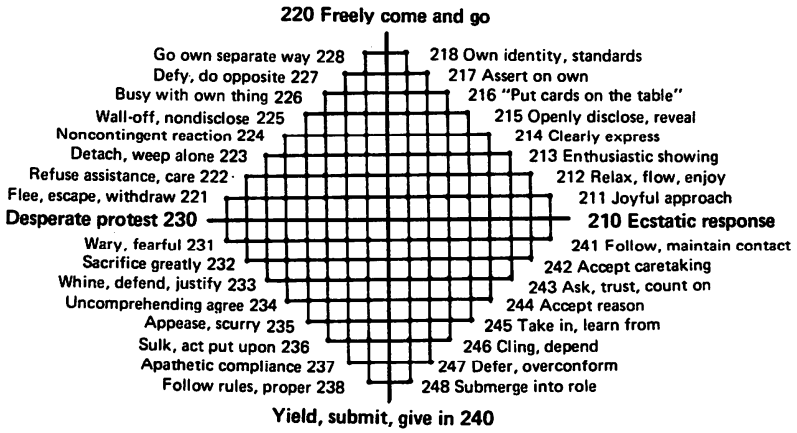


Figure 3.1. Dimensions of the SASB model. This figure is a combination of versions that appeared in Benjamin 1987 (Copyright Guilford Press) and in Benjamin 1979 (Copyright William Alanson White Psychiatric Foundation, 1979. Permission pending.

INTERPERSONAL

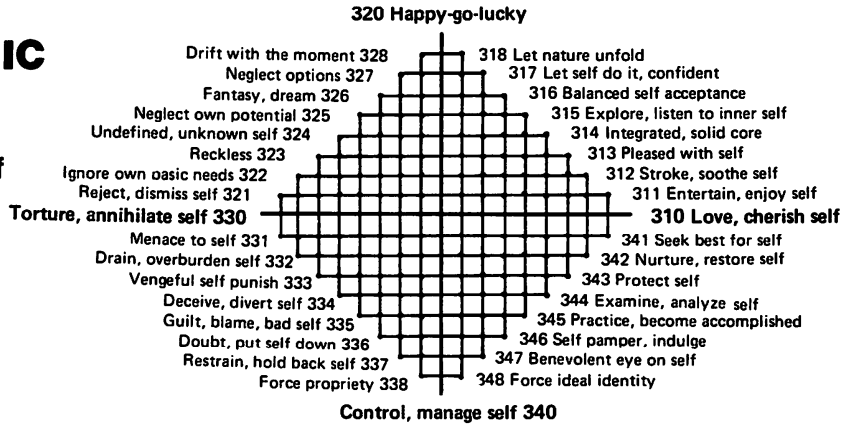


OTHER



SELF

INTRAPSYCHIC



Introject of OTHER to SELF

Figure 3.2 SASB Full Model. This is the most complex version of SASB and it also provides the greatest degrees of resolution in describing interpersonal and intrapsychic events. From Benjamin, 1979. Copyright William Alanson White Psychiatric Association. 1979. Reprinted by permission.

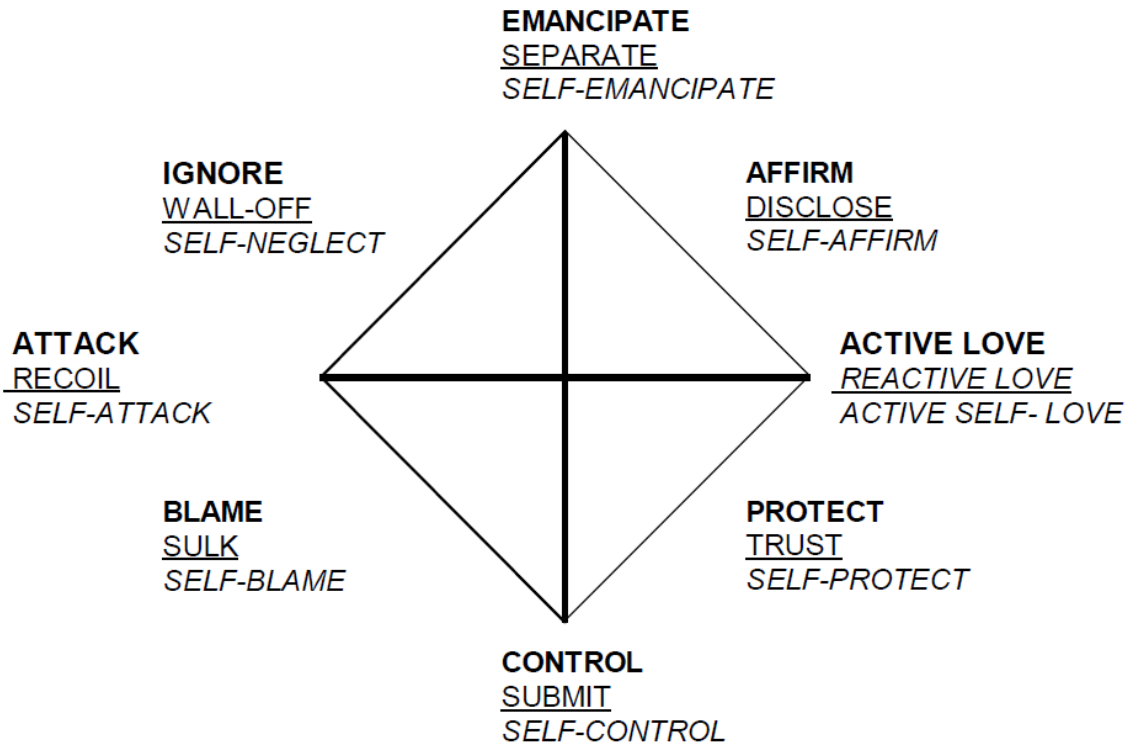
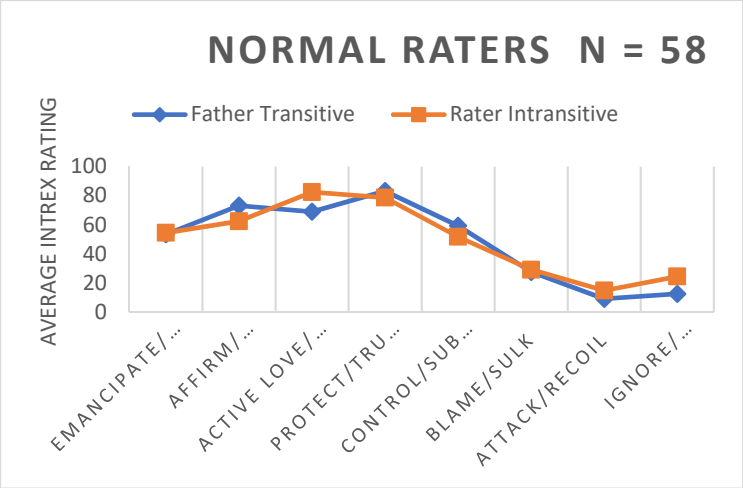


Figure 3.3 – The SASB One Word Cluster model. The three planes in Figure 3.2 are represented here by three types of print. Bold = transitive focus on other; Underlined = intransitive focus on self; Italics indicate introjections: transitive focus directed inward on the self. These points are "ballpark" summaries of events more exactly described by the full model in Figure 3.2. This simplest version and is most convenient to use when describing an interpersonal event in text. From Benjamin, 1996. Copyright Guilford Press, 1996. Permission pending.



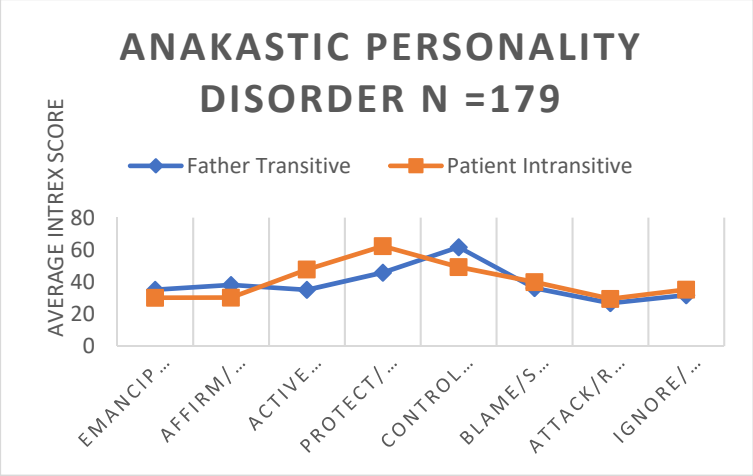
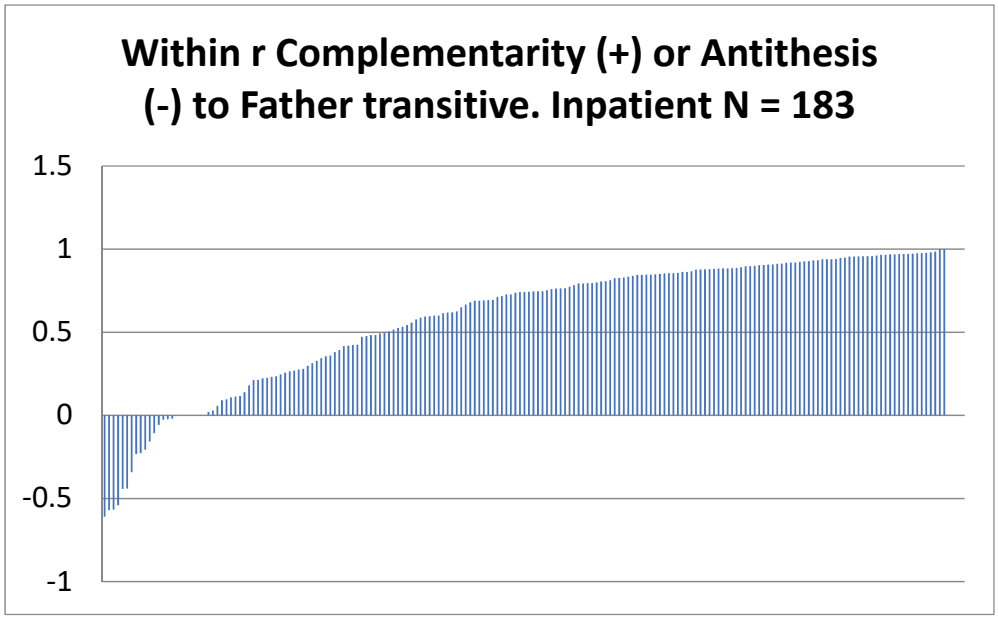


Figure 3.4 Complementarity between Fathers' transitive and patients' intransitive behaviors in normal and patient samples. In the normal sample, average ratings for fathers' transitive and patients intransitive were closely matched, very friendly and supported autonomy; ratings for hostility were far below the true marker of 50. Profiles for Anakastic (obsessive compulsive personality disordered) patients and their fathers were markedly less friendly and more hostile than normal. Patients showed more attachment to fathers than their fathers showed to them. That is another form of evidence that children attach, no matter what is offered.



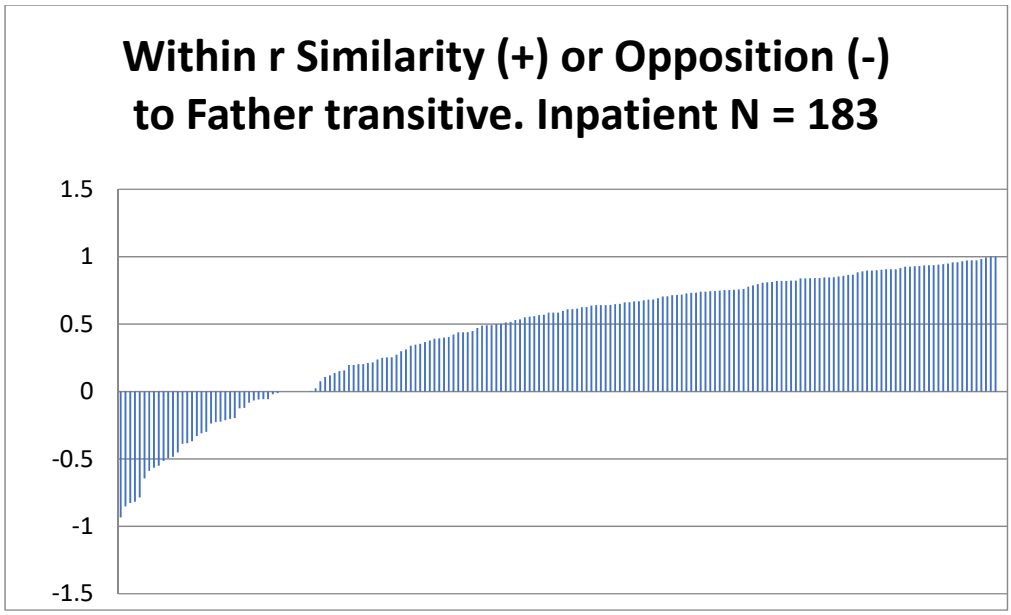


Figure 3.5 – Testing predictive principles by within subject correlations for 183 individual inpatients. Data are from ratings of the SASB Intrex long form that assess rater memory of the relationship with father when rater was aged 5 to 10. The top panel assesses complementarity (right) and antithesis (left). The bottom panel tests Similarity (right) and opposition (left). By this

measure, the figure shows father/rater complementarity for 51.9% of the sample; only 2.7% showed antithesis. Similarity, shown in the bottom panel, met criterion for 36.7%, and 3.7% showed opposition. Here, and in general, complementarity is the most common, while antithesis is the least common and, as explained in the text, that is highly adaptive.

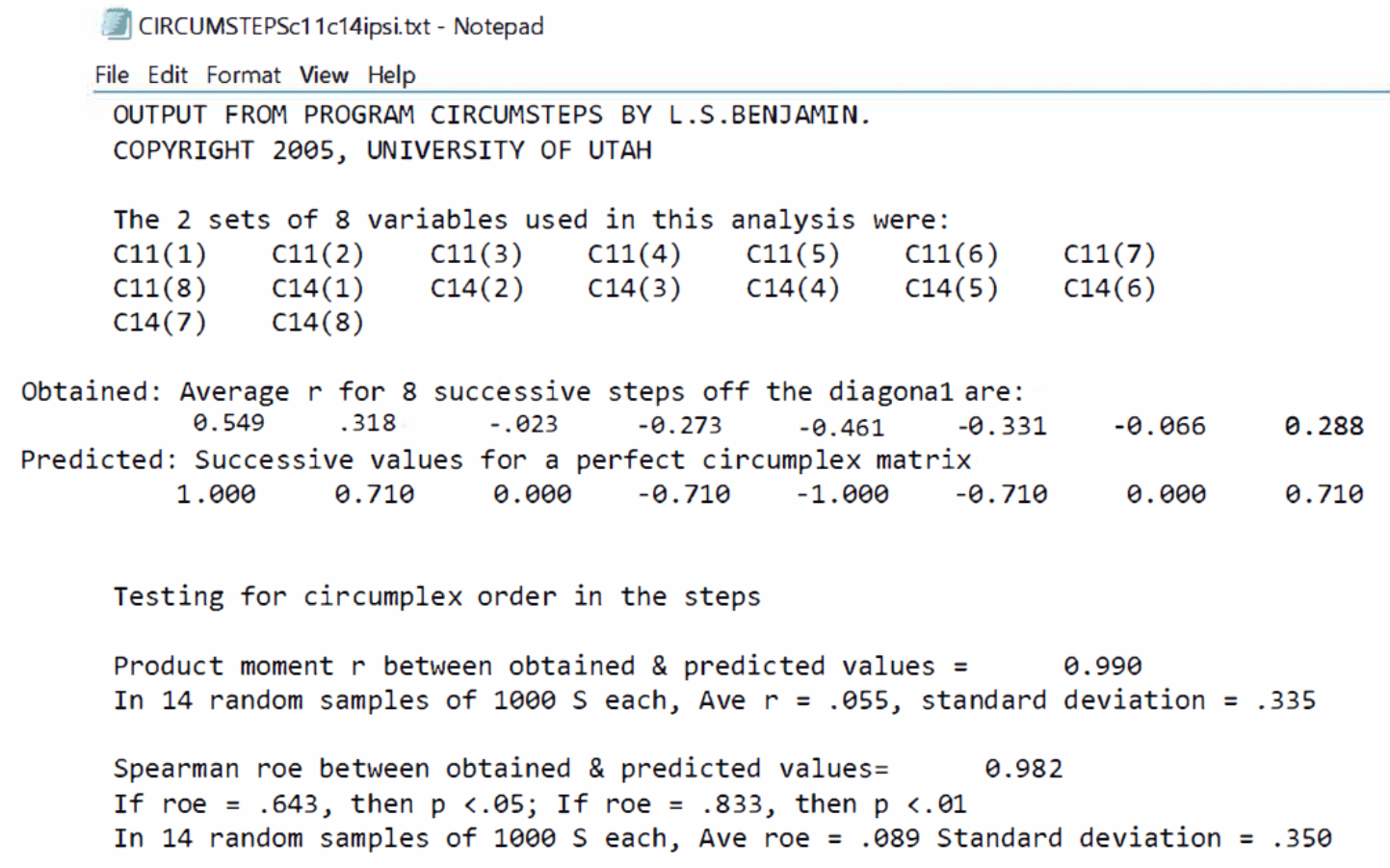


Figure 3.6 – Testing for Predictive principles embedded in circumplex order in a sample of 184 inpatients. The first line in Figure 3.6 presents the average r on the diagonal (exact match between mother transitive and rater intransitive) followed by average r at each successive step away from the diagonal until arriving at the diagonal again. The second line presents the same information for the theoretical (perfect circumplex) model. Data and theory in these two lines are

compared using nonparametric rho. Results show strong complementarity (rho = .98) that conforms to circumplex order. Random data do not replicate this result (rho = .09). Additional detail appears in the text.

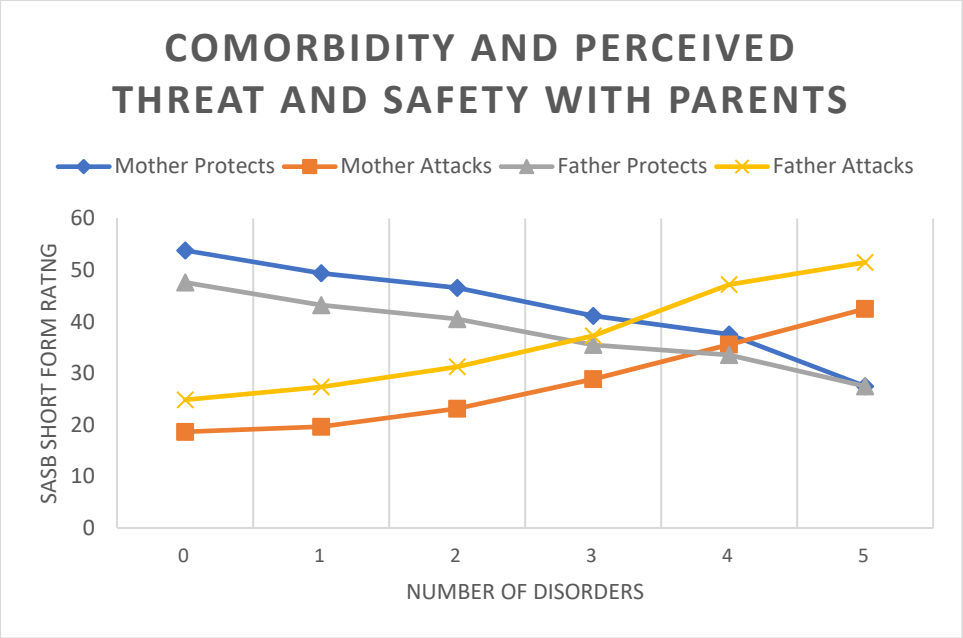
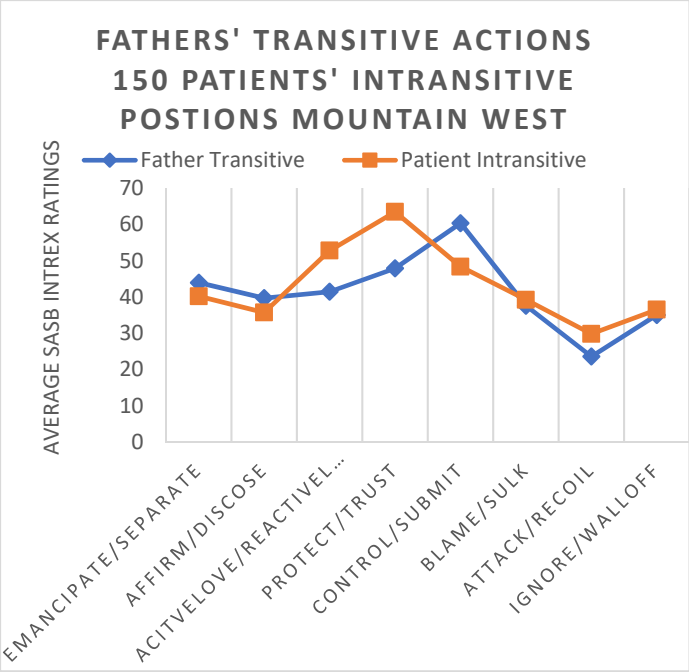
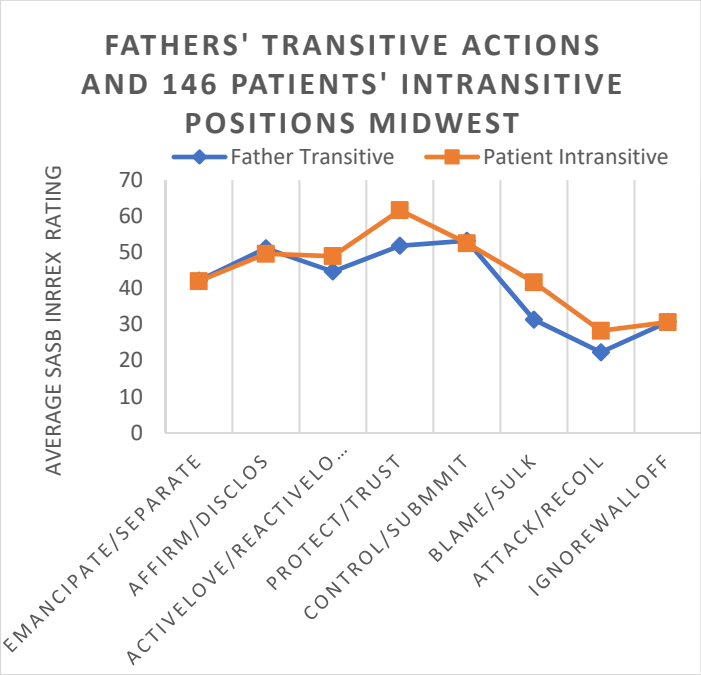
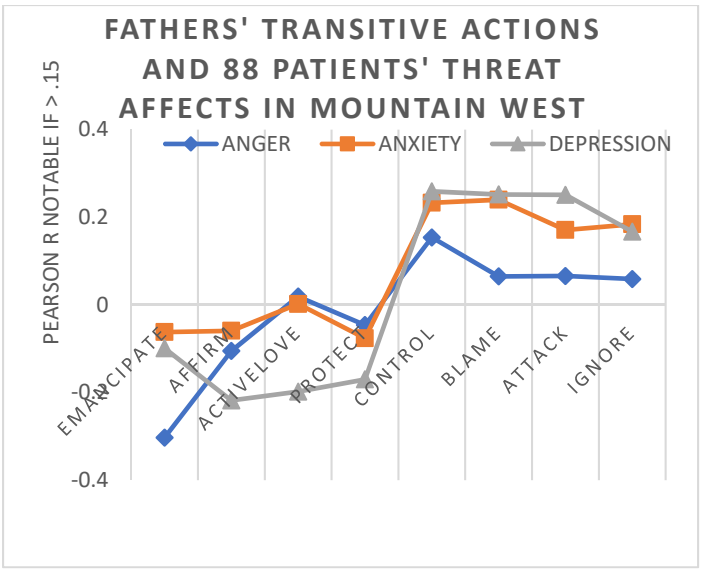


Figure 3 7. Paternal and Maternal Safety and Threat ratings on SASB short form items for 14,829 German patients. Comorbidity (horizontal axis) increases with higher parental **Attack** ratings and decreases with higher **Protect** ratings of parents. Fathers are rated higher on **Attack** and mothers are rated higher on **Protect**.


FATHERS' TRANSITIVE ACTIONS 150 PATIENTS' INTRANSITIVE POSTIONS MOUNTAIN WEST
Father Transitive
Patient Intransitive
AVERAGE SASB INTREX RATINGS
70
60
50
40
30
20
10
0
EMANCIPATE/SEPARATE
AFFIRM/DISCOSE
ACITVELOVE/REACTIVEL...
PROTECT/TRUST
CONTROL/SUBMIT
BLAME/SULK
ATTACK/RECOIL
IGNORE/WALLOFF


FATHERS' TRANSITIVE ACTIONS AND 146 PATIENTS' INTRANSITIVE POSITIONS MIDWEST
Father Transitive
Patient Intransitive
AVERAGE SASB INRREX RATING
70
60
50
40
30
20
10
0
EMANCIPATE/SEPARATE
AFFIRM/DISCLOS
ACTIVELOVE/REACTIVELO...
PROTECT/TRUST
CONTROL/SUBMMIT
BLAME/SULK
ATTACK/RECOIL
IGNOREWALLOFF



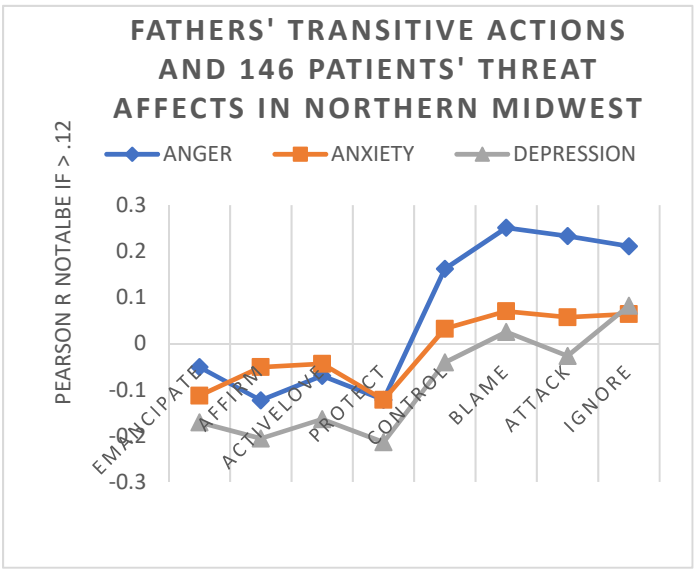


Figure 3.8 The Impact of culture on messages from caregivers about safety and threat. Average ratings for fathers' transitive actions were similar in these two patient samples. The largest endorsements were for **Control**, with the trend more distinctive in the conservative culture. Correlations between perceived paternal behavior and threat affects were noticeably different in the two cultures. In the conservative culture, anger is likely to be punished while compliance with rules is greatly rewarded. That could inhibit copying anger and account for the differences shown in the bottom 2 panels: Paternal hostility was powerfully related to patient anger in the

Midwest but not at all in the conservative culture, where the largest correlation with paternal hostility was with depression.

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