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Article

Father and Mother as a Couple: Conceptual Aspects and Construct Validation[1]

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Abstract: Based on the theory of the indissoluble link, this study aims to validate the scale Father and Mother as a Couple scale (FMC), addressed to marital relations between parents as perceived by their sons and daughters, referring to various components of this construct. The PMC, consisting of eleven pairs of items, and distinguishing father and mother in the same variable, is part of a broader instrument, the Questionnaire on Parents as a Couple (QPC), comprising 60 items overall. The non-probability sample consists of 1,612 youth, 678 men and 934 women, between 18 and 29 years. The analyses presented empirical evidence favoring the validation of this scale as consisting of a single dimension which has, however, been considered as comprising the first principal component interpreted as explicit, and the second one as implicit, both in the father and mother subscales with Cronbach's alphas, respectively, .85 and .86. The Möbius strip is proposed for modeling the explicit-implicit dimensionality.

Keywords: parents, family, test validity, psychometrics

Pai e Mãe na Conjugalidade: Aspectos Conceituais e Validação de Construto

Resumo: Com base na teoria do laço indissolúvel, este estudo teve como objetivo a validação da escala Pai e Mãe na Conjugalidade (PMC), a partir da percepção dos filhos sobre o pai e a mãe, referente a diversos componentes desse construto. A PMC, composta por onze pares de itens, distinguindo pai e mãe na mesma variável, é parte integrante de um instrumento mais amplo, o Questionário sobre a Conjugalidade dos Pais (QCP), constituído de 60 itens. A amostra não-probabilística foi composta por 1.612 jovens, 678 homens e 934 mulheres, entre 18 e 29 anos. As análises apresentaram evidência empírica de validação da referida escala, como constituída de uma única dimensão que apresenta, todavia, um primeiro componente interpretado como explícito e um segundo como implícito, nas subescalas pai e mãe com alfas de Cronbach, respectivamente, de 0,85 e 0,86. A fita de Möbius é proposta para modelação da dimensionalidade explícito-implícita.

Palavras-chave: pais, família, validade do teste, psicometria

Padre y Madre en la Conyugalidad: Aspectos Conceptuales y Validación de Constructo

Resumen: Basado en la teoría del lazo indisoluble, este trabajo tiene como objetivo la validación de la escala Padre, Madre en la Conyugalidad (PMC), desde la percepción de los hijos sobre el padre y la madre, referente a diversos componentes de esa construcción. La PMC compuesta por once pares de artículos, distinguiendo padre y madre en la misma variable, es parte integrante de un instrumento más amplio, el CCP – Cuestionario sobre la Conyugalidad de los Padres (CCP), constituido de 60 artículos. La muestra no probabilística es compuesta por 1.612 jóvenes, 678 hombres y 934 mujeres, entre 18 y 29 años. Los análisis presentan evidencia empírica en el sentido de validación de la referida escala, como constituida de una única dimensión que presenta, sin embargo, un primer componente interpretado como explícito y un segundo como implícito, en las subescalas padre y madre con alfas de Cronbach, respectivamente, de 0,85 y 0,86. La cinta de Möbius es propuesta para modelación de la dimensionalidad explícito-implícita.

Palabras clave: padres, familia, validación de test, psicometria

This study is part of a research on the place of marriage in the life project of young adults who have not married yet, departing from their experience of their parents as a couple. We specifically discuss a scale of 11 item pairs in a larger 60-item questionnaire that assesses different aspects identified as relevant in the experience of this marital relationship. The previous identification of these indicators was based on clinical experience with couples and families, on the pertinent literature and on the theoretical premises we will now express.

At birth, subjects all have their own predestined place which, since conception, is marked by the parents' look, by their ideals and by the family myths that are involved in, and structure, the psyche. Hence, the genealogical order inscribes the subject in humanity and provides references and elements for the construction of identity. To that effect, it is necessary that the subjects appropriate their history, their mark, and actively occupy their place (Magalhães & Féres-Carneiro, 2007).

We can affirm that subjects' creativity and emotional health are evidenced by the way they recognize their destiny

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and change it, imprinting their authorship, integrating what was transmitted to them, in an original and creative movement. At the level of parental care and sociocultural acknowledgement, the difference reflects itself at the symbolic level, through the encounter between the father's subjectivity and the mother's subjectivity. This encounter of subjectivities defines the intersubjective relation between father and mother, and between them and the children. It is in this psychic work context that one should attempt to understand the construction-deconstruction of the psychic links of affiliation and of the unconscious alliances (Benghozi, 2010; Kaës, 2009).

It is important to theoretically distinguish between the marital and the parental intersubjective links. In the marital intersubjective link, separation may be admitted, considering the frequent separation of couples nowadays. If the couple is not only marital but also parental, however, in this condition of father and mother, the link is indissoluble. Like in the three indissolubility conditions of the link between parents, children and siblings, the dissolution of marital relations does not imply the dissolution of parental ones. Therefore, the indissolubility of the parental couple adds up to the theoretical postulate about the indissolubility of the intersubjective link. Thus, we propose the family theory of the indissoluble link between the members of the parental couple, based on the notion of indissolubility of the bond between parents, children and siblings (Benghozi & Féres-Carneiro, 2001; Kaës, 1993/2003a, 1993/2003b).

Marital relations imply the interweaving of two "I's", two subjectivities, to constitute a shared identity, as appointed by the ideal of a marital project marked by the myth of continuity across generations. Constituted based on parental models, the destiny of the marital relationship is to develop into the parental relationship, thus continuing the generational transmission. Hence, marital and parental relations are interwoven in its origin and destiny (Magalhães, 2009).

The couple is based on the logic that one plus one makes three: its dynamics encloses, at the same time, two individuals and one couple. The couple contains two subjects, two individual identities that, in the love relation, live with a conjugality or marital identity. But how can you be two if you are one? How can you be one if you are two? This double inquiry (Féres-Carneiro, 1998) finds a theoretical answer in the logic of the couple proposed by Caillé (1991), in which one plus one makes three, as each couple creates its unique model, the absolute of the couple.

Thus, the definition of couple comprises the two partners and its unique model, its absolute. In addition, conjugality imposes that the model should be a self-referential whole, in which one level forwards to the other without external interference (Caillé, 1991). According to the author, as a result of this self-referring recursiveness, the absolute of the couple is something that turns to itself. Therefore, we propose the Möbius strip (Möbius, 1886) to represent the marital characteristic of self-reference from the logical viewpoint, as formulated by Priest (2010). The author proposes dialetheism as a common solution for all self-reference paradoxes, that is, as the view in which true contradictions exist (*dialetheia*) (Priest, 2006, 2008).

Based on this theoretical framework for the marital dyad, we present a methodology involving statistics on differences between partners in that dyad. To begin with, we follow Tukey (1969) when he characterizes data analysis as a "handmaiden", at the service of psychological theory and the researcher, in his detective work, in empirical investigation. This investigative position is emphasized by Abelson (1995), arguing that the skill to produce credible statistical narratives does not differ from what is demanded from a good detective as, in research, the investigator must solve an interesting case, similar to the "whodunit" of a traditional murder mystery, except that it is a "howcummit" – how come the data fall in a particular pattern. Referring to Abelson (1995), asserting that the data analyst is an advocate and uses statistics in order to argue for a causal theory, Judd & Kenny (2010) conclude that successful data analysis requires a causal theory, in which the correlation plays a fundamental role.

Likewise, the researcher of the role of family psychic transmission in the subjectivation process of the parental couple's descendants is sometimes similar to a detective, in the attempt to articulate theoretical clues with clinical data, and at other times takes the stand of an archeologist, reconstructing the ancestral history of subjectivity. This investigative attitude encourages us to search, in the transmitted legacy, the elements for a family metapsychology (Magalhães & Féres-Carneiro, 2005). But how can one identify the "whodunit", how can one focus on the individual who usually gets lost in the successive aggregations statistics promote? Let us start with an incursion into Philosophy, the demonstration of the possibility of never loosing sight of the individual, taken as a figure, contrasted with the statistical background.

When discussing principles of Justice, Aristotle (1984) proposes that there is an intermediate for the unequal. This intermediate is the equal – where there is a more and a less, there is also what is equal. Based on this discussion of the unequal, we conceive the mean as the division in equal parts, and propose to reformulate its concept for the sake of the statistical analyses exemplified in this work. The advantage of this conceptual re-elaboration is the understanding of the arithmetic mean as that abstract quantity, corresponding to the division of the whole, to be distributed into exactly equal parts. Hence, subjects are entitled to their equal share, in relation to which their position will be larger (positive sign) or smaller (negative sign). Since the sum of the differences is necessarily zero, the subject's score is quantitatively identical to the sum of all the remaining others – as these, as a whole, possess the same numerical value. At the same time, however, it is qualitatively different, given the opposite sign.

In this first step, the quantity is neutralized and makes room for quality, defined by the sense the positive or negative

sign imposes (Ziviani, 1998a). In this context, as a quantity, numbers gain qualification, following the Hegelian definition of measure as a qualified quantity (Hegel, 1812/1966), based on the conception of the mean as an *aufgehoben* ("sublated") equalitarian share. The difference between each subject's position, in the distribution it participates in, and the equalitarian share (s)he is entitled, to allows us to identify his/her contribution to the final statistical result. Consequently, each subject's individuality is preserved and identifiable, all the time, in the correlations the statistical models are based on.

This highlight is particularly relevant for data analysis of nonindependent observations (Judd & Kenny, 2010), with regard to which, in this case, there is the individual level of the subject son or daughter in distinguishing between the father's perception and the mother's perception (level 1, in the multilevel analysis); and the supra-individual level, which this subject's perception turns to, i.e., the level of his/her father and mother as a couple (level 2). The challenge is to analyze these two levels at the same time. In this analysis, the first statistical consideration is to center the variables around zero – if this is done, only the differences that qualify each subject's result as positive (above zero) or negative (below zero) remain, as a consequence of the subtraction of the arithmetic mean from each score or, as we propose here, from the equal share each subject is entitled to in the division of the whole into equal parts. That makes the arithmetic mean mathematically equal to zero – but a zero that, far from being a 'nothing' – *Nichts* according to Hegel (1812/1966) – becomes the fundamental reference point that generates 'pure' individual differences.

The basic methodological issue is the nonindependence of observations, as two judgments come from the same subject, in the same variable. That alone would be a sufficient reason for using a repeated measures analysis. The subject's judgment, however, is about father and mother. As such, the repeated measures design is, in addition, a logically necessary methodological consequence, deriving from the theoretical premise of the indissoluble link in the parental couple. In other words, independently from the possible dissolubility of the marital link, based on the always preserved individuality of the partners, father and mother are correlated. The correlation is the empirical expression of the conjunction between them. In short, as a paralogism, "independent partner" does not exist in this study in conceptual terms. Let us look at how this conceptualization is translated into practice.

When examining 16 studies about why marriages change and deteriorate, Kenny (1998) found the presence of couple effects in some of them, defined as the extent to which members of a couple agree or are similar to each other, effects which can be measured by simply correlating their responses. In addition, Kenny continues, an "agreement correlation itself represents the amount of variance that is shared between husband and wife, and so makes no sense to square the correlation because it is already a variance measure" (p. 412). This conclusion made us conceptually consider the correlation coefficient itself as the unit of analysis of the nonindependence between couple members.

Based on these considerations, in this study, father and mother are analyzed as a couple and, at the same time, preserved as individuals. Thus, this is about the response to the initial inquiry about how to be one in the couple if you are two and, at the same time, how to be two if you are one. This study is justified by the lack of instruments to assess dyadic variables, that is, scores coming from one and another partner (Kenny, Kashy, & Cook, 2006), analyzed simultaneously at the individual (father distinguished from mother and vice-versa), and dyadic levels (marital couple).

Hence, based on the family theory of the indissoluble link between the members of the parental couple and between parents, children and siblings, the aim in this study is the validation of the *FMC* scale – Father and Mother as a Couple, based on how adult children perceive their father and mother, considering different components of this construct.

Method

Participants

The non-probabilistic sample consists of 1,612 young people between 18 and 29 years old (M = 22.23, SD = 3.25), both men (42%, N = 678) and women (58%, N = 934), 1,424 (88%) of whom declared they were single. Participants were recruited in the city of Rio de Janeiro (27%, N = 437), at the so-called Baixada Fluminense or surroundings (62%, N = 993), and in Belo Horizonte (11%, N = 182). The majority was enrolled in higher education (65%, N = 1,049). More than half (59%, N = 949) declared they belonged to the middle class, upper middle class or higher, with married parents (61%, N = 976). A minority reported living outside the parents' home (20%, N = 328).

Instrument

We focused on the eleven item pairs of the Father and Mother as a Couple (FMC) scale, which are part of the Questionnaire on Parents as a Couple (QPC) (Féres-Carneiro, Ziviani & Magalhães, 2007), which consists of 60 items. Originally studied in the present research, the FMC comprises 22 five-category Likert items, listed in Ziviani, Féres-Carneiro & Magalhães (2009), distinguishing between father (11 items) and mother (11 items) in the same variable. Thus, it differs from the other QPC items, which focus on "my parents" (Ziviani, Féres-Carneiro & Magalhães, 2011). In the results, the FMC items are referred to by the number that indicates their position in the QPC. Besides the QPC items, in the original research (Féres-Carneiro, Ziviani & Magalhães, 2007) the Biographical Evaluation Form (BEF) was also used to survey general data on the subjects and their families, such as age, gender, education, sexual orientation, family constitution, parents' marital situation, social class and participation in family income.

Procedure

Data collection. The questionnaire, including the BEF, was answered individually. The answers were coded, the consistency of the data contents was systematically verified, and the missing data were examined with the help of the specific module in IBM SPSS (2010). Among the missing responses, nothing was found that could be considered as systematic variance. Item by item missing data in the scales remained far below one percent. This proportion increases when analyzing, like in this study, in the correlations, only people who did not omit any item– including the remaining 1,612 – 1,479 = 133 people implies adopting some kind of estimate for the missing data. This becomes unnecessary as, in the analysis performed, the pattern found points towards missing at random, i.e., non-systematic omissions.

Data Analysis. Initially, we repeat the data analysis strategy used by Ziviani, Féres-Carneiro and Magalhães (2011) for the items of the Questionnaire on Parents as a Couple (QPC) focused on "my parents". Principal components analysis, showing that the circumplex variance structure, with cross-loading of items in the first two components, observed in that study, was replicated here. In this case, however, two sources of nonindependence of observations are present. The first comes from the theory of the indissoluble link, as the observations refer to the father and to the mother. The second derives from the fact that the the two observations were presented by the same subject, thus prescribing repeated measures analysis. This double condition of nonindependence made us elect the correlation coefficient itself as a measure of variance, as referred by Kenny (1998) in the context of research involving marital dyads. That explains the strategy of decomposing this coefficient, so as to unveil its qualitative nature and its logical foundation. To compare means-father with means-mother, the *t*-test for paired samples could also be used, regardless of the repeated measures analysis of variance, in which the main independent variable is the subject him/herself. In fact, however, this would not add anything substantial as, in accordance with Field (2009), when exemplifying the conversion of the *t*-test to a correlation, "all statistical procedures are basically the same, they're just more or less elaborate versions of the correlation coefficient!" (p. 343).

Ethical Considerations

The research project complied with all ethical guidelines and received approval from the Research Ethics Committee at the Psychology Department of the university where the study took place, under number 05/2004. All participants signed the Informed Consent Term, declaring their agreement with the future use of the data in teaching, research and scientific publications. Subjects were offered the opportunity to access their own individual results. If interested, they wrote down their name, electronic address, and telephone.

Results and Discussion

Figure 1 illustrates how the nonindependence of observations is considered. The scale related to the father is treated independently from the scale related to the mother, exactly to permit the analysis of the interdependence between one scale and the other.

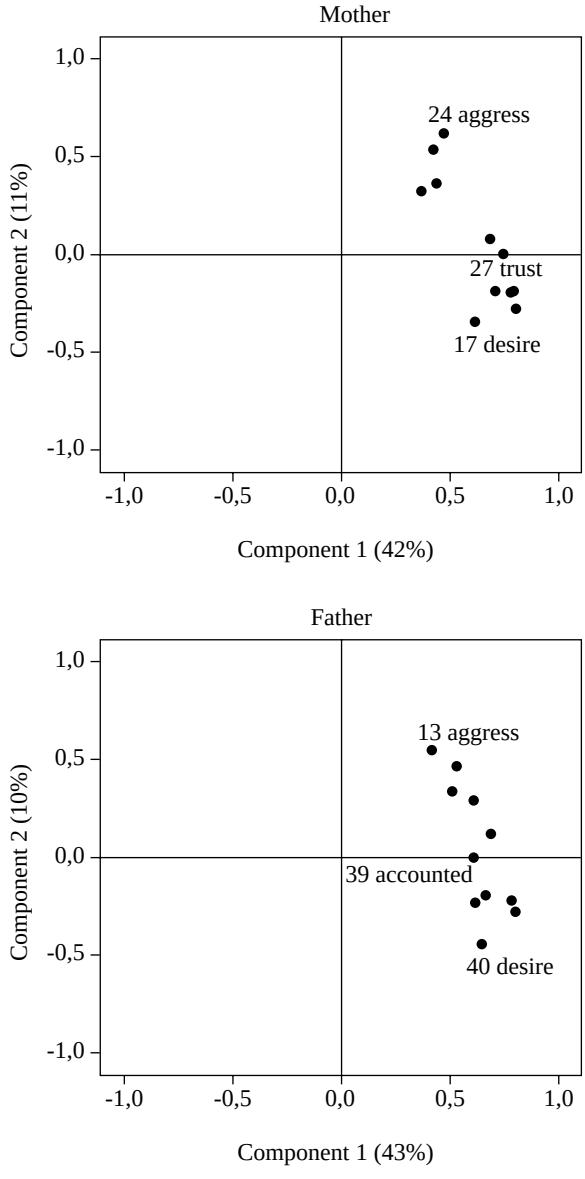

Figure 1. Principal component analysis results from the 11 items Father and 11 items Mother: item loadings in the components.

The observation of Figure 1 reveals that, for the father as well as for the mother, there is a second component presented by the results of the principal components analysis. The loadings of Component 1 are high in all items, so that, in the two graphs, none of the items is located near the crossing of the axes – all items are located to the right along the horizontal axis. Components C1 and C2 explain 43% and 10% of

variance for the *Father* subscale, and 42% and 11% for the *Mother* subscale, respectively.

Table 1 presents, step-by-step, the results of the qualitative constitution of Pearson's product-moment correlation between the item "My father demonstrated being a happy person" and the item "My mother demonstrated being a happy person", as examples of the adopted analytic procedure. The 1,479 subjects attributed 5,526 units of happiness to the father. Likewise, 5,703 units of happiness were attributed to the mother. The division of these total values into equal shares implies their division by the number of subjects, 1,479. The result is the equal share of 5,626/1,479 = 3.80 for each attribution to the father and 5,763/1,479 = 3.85 to the mother. These two results correspond to the arithmetic mean, or equal share, of each distribution. This equal share is subtracted from each value, coded as 1, 2, 3, 4 or 5. These positive and negative differences in relation to the equal share are shown in the first two left columns in Table 1, respectively, for the Father and for the Mother: 1–3.80=−2.80 in the Father column; 1–3.85=−2.85 in the Mother column.

Table 1

Qualitative Constitution of Covariance (Part A) and Correlation (Part B) between Item 53 Happiness: My Father Demonstrated Being a Happy Person and Item 9 Happiness: My Mother Demonstrated Being a Happy Person

A. Mean (equality) 3,80 (Fa) and 3,85 (Mo)					B. Standard-deviation 1,11 (Fa) e 1,10 (Mo)					C. Sum of products by qualitative category			
Differences from equality					Standardized differences					*N*	Total marital relations		
Father		Mother		Fa × Mo	Father		Mother		Fa × Mo		Fa × Mo Products		
-1,80	x	-2,85	=	5,145	-1,62	x	-2,59	=	4,199	*8*	33,59		
-2,80	x	-1,85	=	5,193	-2,52	x	-1,68	=	4,238	*12*	50,86		
-0,80	x	-2,85	=	2,293	-0,72	x	-2,59	=	1,871	*14*	26,20		
-2,80	x	-2,85	=	7,997	-2,52	x	-2,59	=	6,527	*16*	104,43	604,39	*357*
-2,80	x	-0,85	=	2,389	-2,52	x	-0,77	=	1,950	*17*	33,15		
-0,80	x	-1,85	=	1,489	-0,72	x	-1,68	=	1,215	*42*	51,04		
-1,80	x	-0,85	=	1,537	-1,62	x	-0,77	=	1,254	*43*	53,94		
-1,80	x	-1,85	=	3,341	-1,62	x	-1,68	=	2,727	*63*	171,79		
-0,80	x	-0,85	=	0,685	-0,72	x	-0,77	=	0,559	*142*	79,38		
-2,80	x	1,15	=	-3,219	-2,52	x	1,04	=	-2,628	*3*	-7,88		
-1,80	x	1,15	=	-2,071	-1,62	x	1,04	=	-1,690	*5*	-8,45		
-2,80	x	0,15	=	-0,415	-2,52	x	0,13	=	-0,339	*6*	-2,03	-58,22	*164*
-1,80	x	0,15	=	-0,267	-1,62	x	0,13	=	-0,218	*30*	-6,54		
-0,80	x	1,15	=	-0,923	-0,72	x	1,04	=	-0,753	*33*	-24,86		
-0,80	x	0,15	=	-0,119	-0,72	x	0,13	=	-0,097	*87*	-8,45		
0,20	x	-2,85	=	-0,559	0,18	x	-2,59	=	-0,456	*3*	-1,37		
1,20	x	-2,85	=	-3,411	1,07	x	-2,59	=	-2,784	*7*	-19,49		
1,20	x	-1,85	=	-2,215	1,07	x	-1,68	=	-1,808	*10*	-18,08	-68,72	*138*
0,20	x	-1,85	=	-0,363	0,18	x	-1,68	=	-0,296	*16*	-4,74		
1,20	x	-0,85	=	-1,019	1,07	x	-0,77	=	-0,832	*16*	-13,31		
0,20	x	-0,85	=	-0,167	0,18	x	-0,77	=	-0,136	*86*	-11,73		
1,20	x	0,15	=	0,177	1,07	x	0,13	=	0,145	*93*	13,44		
0,20	x	1,15	=	0,225	0,18	x	1,04	=	0,184	*112*	20,58	445,76	*820*
0,20	x	0,15	=	0,029	0,18	x	0,13	=	0,024	*253*	6,00		
1,20	x	1,15	=	1,373	1,07	x	1,04	=	1,121	*362*	405,74		
									Total	*1479*	923,21	923,21	*1479*

923,21 units distributed in 1,479 parts are equal to 0,624 for each couple.
(Pearson Correlation)

negative differences positive differences

Note. The four different qualitative configurations are marked by the contrasts between the two shades of grey. In part A, the differences between the Likert scores 1, 2, 3, 4 and 5 and the respective means Father (Fa) and Mother (Mo) define the coefficients line by line in both columns Father and Mother. In part B, these coefficients are divided by the respective standard deviations (Father, Mother). Columns in part C successively group the products in function of the number N of respondents in each qualitative category.

Column *N* in Table 1 presents the number of marital couples in each qualitative combination of positive and negative differences. The obtained sum of the Father × Mother product, in the respective categories, after multiplying by the number of couples, differs from zero and can be distributed in equal parts among the 1,479 couples. This equalitarian marital share derives from the parents as a couple's marital covariance. "Couple" because the father's individuality, in the multiplication with the mother's individuality, results in the product "Couple". The operational definition of the marital relation between father and mother is actualized through this product.

In Table 1, the set Standardized differences re-expresses the differences in units of standard deviation ("z" scores). After taking into account the number of parental couples in each qualitative condition, the sum of products Father × Mother result in 923.21. This corresponds to the amount of units of marital happiness to be distributed in equal parts among the 1,479 couples. The equally distributed share corresponds to 0.624 for all couples. Four qualitatively distinct categories exist though – 357 couples with negative father and negative mother, 164 with negative father and positive mother, 138 with positive father and negative mother, and 820 with positive father and positive mother, resulting in the sub-totals + 604.39, –58.22, –68.72 and + 445.76, respectively.

In Figure 2, one can see that the qualitative categories obtained in Table 1 reveal a syntax: they organized themselves into the logical gate of equivalence. In the matrix at the left side of Figure 2, the letter T means true and the letter F means false in Wittgenstein's proposal, presented in paragraph 5.101 of the *Tractatus* (Wittgenstein, 1922/2010). Making p correspond to Father and q to Mother, one can paraphrase "if father, then mother; and if mother, then father" (p. 56 and p. 125, respectively, in the bilingual English-German edition). In our example, the qualitative situation "if happy father, then happy mother" is rendered true (T, true), and the same is the case for "if unhappy father, then unhappy mother". The other two possibilities, in the syntactic condition of logical equivalence, are rendered false for "if unhappy father, then happy mother" and "if happy father, then unhappy mother". Or vice-versa. Both signalize the marital relationship negatively; the parents are conjoined, but negatively.

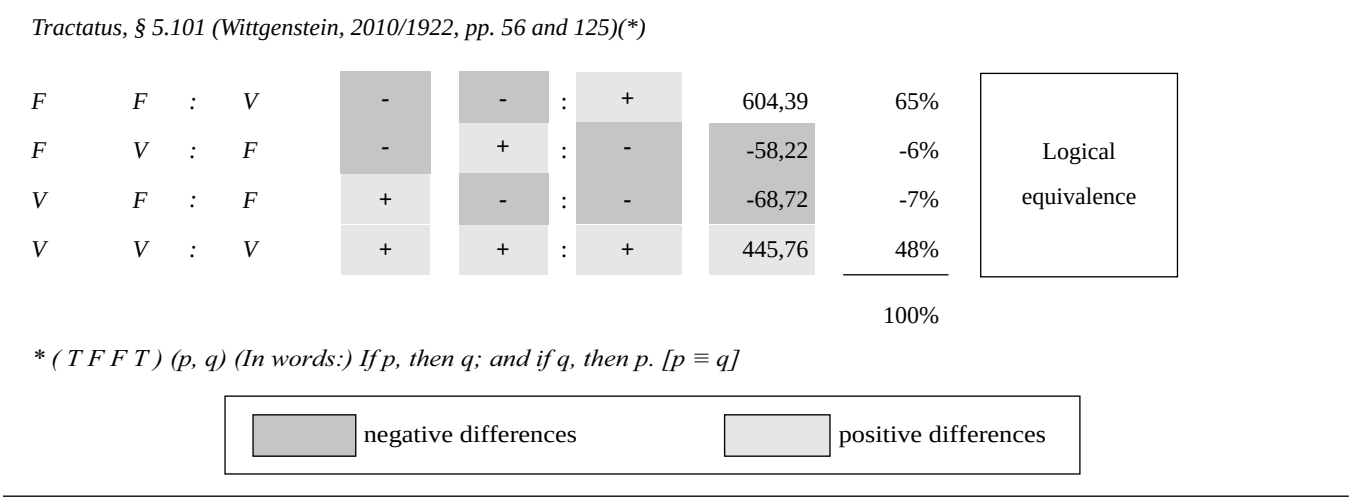

Figure 2. Qualitative synthesis of configuration observed in the correlation data presented in Table 1 between the items 53 happiness: My father demonstrated being a happy person and item 9 happiness: My mother demonstrated being a happy person. The syntax corresponds to the logical door of equivalence, in line with Wittgenstein's proposals. Coefficients on each line are reproduced from Table 1. The percentages represent that part of the whole corresponding to each of the four qualitative categories that compose the correlation under analysis.

The empirical counterpart of the healthy marital relationship points towards the condition of happy father and happy mother. There are 820 couples (55%) in this condition. In the opposite condition, in which both father and mother are perceived as unhappy, there are 357 couples (only 24%). As observed at the right side of Figure 2, however, these were the couples that most contributed positively to the correlation: 65%, in comparison to their opposites (48%), and to couples whose children perceive them as contradictory (–6% and –7%).

In Table 2, results are presented according to the conception highlighted in the introduction, based on the theoretical framework of Caillé (1991), Féres-Carneiro (1998), Féres-Carneiro and Diniz-Neto (2010) and Kaës (1993/2003a, 1993/2003b, 2009), about the simultaneous contact between individuality (father in the row, mother in the column – or vice-versa) and the marital relation (actualized through the correlation, in bold, on the main diagonal). Thus, the matrix in Table 2 has double contents. On the left and horizontally, it presents the correlation coefficients between the items of the *Father* subscale and, on the right and vertically, the correlation coefficients between the items on the *Mother* subscale. The main diagonal shows the intra-item correlations,

between father and mother, in the same variable. The arrangement of these correlations, calculated through IBM SPSS 19 (2010), using N–1 = 1,478 subjects, constitutes the final design suggested for the psychometric scaling of the marital relation between father and mother – both scales are considered simultaneously, with a view to modeling reflection and self-reference in the marital couple. The means, with the respective standard deviations, in the margins of Table 2, are considered as a technical reference of the distribution, in equal parts, of the subjects' sum of scores.

Table 2
Correlations between items on the Father Subscale and items on the Mother Subscale

Items	26 difficult	41 spoke badly	52 insecure	47 convenience	24 aggress	56 solitude	27 trust	04 accounted	33 satisfaction	17 desire	09 happiness	α = ,86	Mean	± SD
03 difficult	**,242**	,29	,33	,22	,34	,26	,35	,22	,23	,15	,25		4,31	,99
06 spoke badly	,37	**,337**	,28	,23	,21	,29	,25	,15	,24	,20	,26		3,48	1,28
08 insecure	,38	,31	**,367**	,41	,23	,53	,55	,19	,45	,26	,47		3,74	1,34
11 convenience	,28	,33	,36	**,619**	,26	,54	,43	,21	,56	,44	,51		4,02	1,26
13 aggress	,30	,24	,28	,20	**,437**	,21	,27	,18	,23	,14	,26		4,74	,73
19 solitude	,25	,28	,38	,41	,15	**,497**	,51	,17	,62	,40	,62		3,57	1,25
18 trust	,34	,30	,47	,39	,34	,38	**,500**	,22	,57	,39	,54		3,87	1,25
39 accounted	,31	,26	,33	,36	,27	,25	,40	**,254**	,23	,16	,28		4,21	1,07
48 satisfaction	,31	,32	,41	,55	,28	,47	,53	,49	**,709**	,53	,66		3,59	1,25
40 desire	,25	,23	,24	,42	,15	,39	,38	,40	,63	**,611**	,48		3,45	1,26
53 happiness	,36	,35	,40	,50	,27	,53	,48	,45	,69	,55	**,625**		3,85	1,10
α = ,86	Father													
Mean	3,83	3,73	4,15	4,05	4,74	,401	4,24	3,89	3,74	3,68	3,80		N = 1.479	
± SD	1,24	1,30	1,16	1,29	,71	1,08	1,05	,122	1,21	1,20	1,11			

Mother

Note. Correlations between Father and Mother, in the same variable, are printed in bold, on the principal diagonal (inter-father, intra-item correlations). Correlations between the items responded about the Father are displayed in the lower left part (inter-item, intra-father correlations). Correlations between the items responded about the Mother are displayed in the upper right part (inter-item, intra-mother correlations). The permit the estimation of co-variances, the means, standard deviations and Cronbach's alpha coefficient of the Father items are shown on the two bottom lines of the table; the same statistics for the Mother items are displayed in the two columns on the right.

Let us now imagine that Table 1 presents the constitution of the correlation r = 0.337, observed in Table 2. This refers to item 06 spoke badly ('My father spoke badly about my mother's family') correlated with item 41 spoke badly ('My mother spoke badly about my father's family'). This number '0.337' results from the division, in equal parts, of the sum of each couple of parents' contributions to the total parental marital relation. Hence, this sum will necessarily equal the multiplication of each part of 0.337 by the 1,479 participating subjects, i.e., 0.337 × 1,479 = 498.42. Now, this number is practically half of '923.21', whose division into equal parts is the correlation between items 53 happiness and 09 happiness. This means that the negative contributions are proportionally much larger. In practical terms, for every positive contribution that adds, increasing the final correlation, a negative contribution will exist that subtracts, making the final correlation tend towards zero. This non-detachment from the original families in the two contradictory conditions could be examined in the light of the theoretical considerations about the fundamental contradiction of the marital link presented in the introduction. The detachment from the original parental links is a pre-condition for the creation of a new structure deriving from the transformation of each partner's parental models, as discussed in Benghozi (2010), Féres-Carneiro (1998), Kaës (2009) and Magalhães (2009).

In Figure 3 are the loadings of components C1 and C2 for the father and mother subscales. At the left side, it is observed that the loadings between the items and the first component (C1), classified top-down, range between.822 (48 satisfaction, 'My father demonstrated satisfaction with marriage') and.442 (13 aggress, 'My father physically aggressed my mother') for the father subscale, and between.807 (33 satisfaction, 'My mother demonstrated satisfaction with marriage') and.372 (04 accounted, 'My mother accounted for what she said or did') for the mother subscale. Consequently, all eleven items are correlated with the first dimension, or first principal component, C1, of the Father and Mother as a Couple (FMC) scale.

The right side of Figure 3 shows the top-down classification for the second principal component, C2. The two items with the highest loadings, placed at the two extreme ends of the subscales, can be considered exclusive to the marital couple. In the father subscale, item 13 aggress

('My father physically aggressed my mother'), with loading.552 (and simultaneous loading of.442 in C1) and item 40 desire ('My father demonstrated desire for my mother'), with loading –.438 (and loading.670 in C1). In the mother subscale, item 24 aggress ('My mother physically aggressed my father'), with loading.621 (and simultaneous loading of.423 in C1) and item 17 desire ('My mother demonstrated desire for my father'), with loading –.347 (and loading.613 in C1). Thus, the highest loadings in the second component, at the same time as also high loadings in the first component, are for items related to affection, whether positive (desire) or negatively (aggress). In addition, a difference between father and mother is found for the item that occupies a central position in the top-down hierarchy of correlations in the second component, C2. In the father subscale, the item that serves as a "hinge" for the mutual reflection, among the items above and below, is the indicator related to accountability, item 39 accounted ('My father accounted for what he said or did'), with loading.001. In the mother subscale, on the other hand, it is the indicator related to trust, item 27 trust ('My mother seemed to trust my father') that occupied the central position, with loading.008.

		C1	C2		C1	C2		
Father	**48 satisfaction**	**,82**	-,27		**,44**	**,55**	**13 aggress**	Father
	53 happiness	**,80**	-,21	Strip	**,56**	**,47**	**03 difficult**	
	18 trust	**,71**	,12		**,53**	**,34**	**06 spoke badly**	
	11 convenience	**,68**	-,19		**,63**	**,30**	**08 insecure**	
	40 desire	**,67**	**-,44**		**,71**	,12	18 trust	
	19 solitude	**,64**	-,23		**,63**	,00	39 accounted	
	39 accounted	**,63**	,00		**,68**	-,19	11 convenience	
	08 insecure	**,63**	**,30**		**,80**	-,21	53 happiness	
	03 difficult	**,56**	**,47**		**,64**	-,23	19 solitude	
	06 spoke badly	**,53**	**,34**		**,82**	-,27	48 satisfaction	
	13 aggress	**,44**	**,55**		**,67**	**-,44**	**40 desire**	
Mother	**33 satisfaction**	**,81**	-,28		,42	**,62**	**24 aggress**	Mother
	09 happiness	**,80**	-,18		,37	**,54**	**04 accounted**	
	56 solitude	**,78**	-,19		,47	**,36**	**26 difficult**	
	27 trust	**,76**	,01		,44	**,32**	**41 spoke badly**	
	47 convenience	**,71**	-,19		,69	,08	52 insecure	
	52 insecure	**,69**	,08		,76	,01	27 trust	
	17 desire	**,61**	**-,35**		,80	-,18	09 happiness	
	26 difficult	**,47**	**,36**		,71	-,19	47 convenience	
	41 spoke badly	**,44**	**,32**	Möbius	,78	-,19	56 solitude	
	24 aggress	**,42**	**,62**		,81	-,28	33 satisfaction	
	04 accounted	**,37**	**,54**		,61	**,35**	**17 desire**	

Figure 3. Principal component analysis, C1 and C2. Cross-loading of items between components C1 and C2. Ordering of items on the Möbius strip. C1 is the explicit component and C2 the implicit component. Loadings in the components >.30 are printed in bold.

Also, the four highest loadings in component C2 are from items with equally high loadings in the first component, C1. The same can be observed for the two items with the highest negative loading: both 17 desire (My mother demonstrated desire for my father) and 33 satisfaction (My mother demonstrated satisfaction with marriage) show high loadings in the first component −.61 and.81 respectively. This cross-loading suggests the inquiry: how to consider theoretically relevant items that are correlated with two orthogonal and independent dimensions at the same time?

In this study, we only consider one route to answer this question, which refers to its representation, in the configuration Guttman (1954/1955) originally called circumplex – i.e., the replacement of the vertical order of factor loadings by the circular form, in which the notion of hierarchy loses meaning. We also propose the Möbius strip (Möbius, 1886) as a functional analogue to model this type of circumplex, especially regarding the proposal of the adjective *explicit* to name the role of the items in the first component, or factor, representing the "marital relationship" construct, and the adjective *implicit* to designate the role played by the same items in the second component of the same construct.

Thus, the logical characteristic of the Möbius strip becomes even more important, i.e., for modeling the

self-reference model Caillé (1991) postulated concerning the couple. With regard to this comes the logical demonstration, defended by Priest (2010), that "the inside is the outside, and the outside is the inside; truth is falsity, and falsity truth" (p. 43). In Figure 3, the reference to the Möbius strip is located at the crossing between components C1 and C2 and, at the same time, between the Father and Mother subscales, with the inflection point that was empirically determined through the principal components analysis Each scale is divided into two halves, with item 39 accounted (My father accounted for what he said or did), representing this inflection point for the Father subscale, and item 27 trust (My mother seemed to trust my father) for the Mother subscale, with loadings 0.001 and 0.008, respectively. In the component scores, the responses to these items practically disappear, as they are multiplied by weights that very closely border on zero.

Figure 4. Möbius strip, twisted configuration in which the inside is the outside, and the outside is the inside; truth is falsity, and falsity truth (Priest, 2010, p. 42-43). In this study, besides representing the marital characteristic of self-reference from the perspective of dialetheism in logic (Priest, 2006, 2008), according to which true contradictions exist, the Möbius strip is also proposed to model the explicit-implicit dimensionality of the PMC scale. Copyright: Zentilia/Shutterstock

In addition, a third reason exists to again adopt the Möbius strip, besides the two mentioned above. At the same time as this study admits the dissolubility of the intersubjective link for the marital couple, it proposed the indissolubility of the link for the parental couple. Even if they are separated, ex-husband and ex-wife, despite the marital link undone, they remain inexorably united by the indissoluble link as a parental couple. The Möbius strip models this second condition. Let us imagine using scissors to separate, cutting the horizontal line that separates items in Figure 3, the items related to the father (vertically listed in the upper half of the table) from the items related to the mother (ditto, in the lower half). The cut would symbolize the separation of the marital as well as the parental couple. Let us now imagine items placed in the circumplex, i.e., circular form, with the Father and Mother items displayed side by side along the Möbius strip. When we cut along this strip with the scissors, following the line that separates Father and Mother items, the marital couple will be separated, but not the parental couple, as the strip would be separated in two if it were not a Möbius strip (as both ends were jointed after being twisted 180 degrees, on one of the surfaces, before being glued to the other).

Finally, it should be asked whether the scale is reliable, and valid, to evaluate father and mother as a couple. The magnitude of the internal consistency coefficient Cronbach's alpha, as shown in Table 2, is sufficiently high (.86 for father and.85 for mother, with 11 paired items) to conclude that the set is reliable. We use the word "set" because, in view of the theory of the indissoluble intersubjective link, we do not consider an eventual scale that would add up father and mother scores as valid. The sum would not distinguish between the inter-item father and inter-item mother correlations, from the correlation between father and mother in the same item, considered as self-referent, presented item by item on the diagonal of the matrix in Table 2. The difference between father and mother scores would not make this distinction either and, in addition, this would entail additional problems related to the subtraction of the correlations (Furr, 2011). Besides, both procedures would hamper our goal of never losing out of sight the qualitative aspect, connected with the individual subject, no matter the statistics involved. Therefore, the scales should be kept separately and the relations between one another should be expressed, in the future, in multilevel models – especially concerning Cronbach's alpha (1951), which is inappropriate in the case of nested two-level observations like in the present study (Nezlek, 2011). That will permit the systematic investigation of the essence of the marital relation as it is empirically defined here: the subjective nonindpendence between individuals who are indissolubly interlinked in a shared destiny.

From a strictly psychometric viewpoint, we consider that the analysis example present empirical evidence for the validation of the Father and Mother as a Couple scale as unidimensional. This dimension, however, becomes two-faced: Component C1 measures the explicit marital relation, while component C2, orthogonal to the first, measures the implicit marital relation. These components present themselves independently, since the correlation between them is mathematically zero, as a consequence of the principal components analysis used. Conversely, we underline that exploratory factor analysis would not produce factor loadings with both characteristics in any way, as referred by Ziviani, Féres-Carneiro and Magalhães (2011).

When comparing definitions of validity for psychological tests with the more contemporaneous view, according to Primi, Muniz and Nunes (2009), a reorganization and renovation can be identified in conceptual terms. Summarizing the definition of validity that emphasizes the interpretative

meaning and use of the test, they conclude that "this definition associates validity with a scientific investigation that verifies the meanings attributed to the test scores as well as the current or potential consequences of the interpretative use of the scores" (p. 247). Hence, we consider that the psychometric evidence presented attends to expectations with regard to the validation of the meanings attributed to the scores.

We started with the Aritstotelian conception of the mean, followed by the possibility of the Hegelian measure in psychology (Ziviani, 1998b), and the representation of something as being and not being at the same time (Ziviani, 1998a), conceptualized by Priest (2006) as *dialetheia* in contemporary logic, as the philosophical foundations for the method presented here. Of particular concern are the opposites taken as contradictories which, as "they are unique", are not mixed up with contraries, so that one can move "up to logical equivalence" (Priest, 2008, p. 78). We believe that this method, philosophically supported as described above, not only allows the researcher to investigate Abelson's *howcummit* (1995) – why data take a certain form, but also permits the identification of *whodunit* – the quality of each subject's participation, going beyond the simple magnitude of this role in the statistics used.

Final Considerations

We kept in mind the question by Sireci (2009): "If the use of this test for the purpose I am using it for were challenged in court, do I have sufficient evidence to persuade the judge or jury and win the case?" (p. 31) when trying to direct our epistemological efforts towards the validation of the Father and Mother as a Couple scale. We consider that the use of the methodological procedure described here permits answering "yes" – the subject will always be individually identified as a figure, amidst the other participants in the correlations, in the statistical background adopted.

The main contribution of this study is to highlight the variance structure of the "father and mother as a couple" construct, made possible by the adequacy of the items, which allowed the large majority of subjects to identify each of the referred situations in their parents' marriage. Each subject psychologically answered by confirming, or denying, the situation the item referred to, consistent with his/her affirmation or denial of the other situations described in the other items. This is possible based on the theoretical-methodological proposal of the indissoluble link, corroborated by the clinical practice involving couples and families.

Even if the method prescribed in the theory of the indissoluble link permitted unveiling the basic structure of this covariance, the main limitation in the present study is that the analysis was not extended to the full range of available resources, from the *t*-test to multilevel analysis, including the use of the so-called Exploratory Structural Equation Modeling (Asparouhov & Muthén, 2009; Marsh et al., 2010), which makes it possible to expressly incorporate the cross-loading of items into the model.

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