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An operationalized procedure for the recognition of premorbid personality types in biographical case notes on psychiatric patients

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Summary. A method for the assessment of six premorbid personality types from biographical data in psychiatric case histories is described. Trained raters have to fill in a list comprising 106 items as descriptors of a patient's premorbid behavioural development. The assignment to the types in question (the "manic type" and its rare variant, the "happy-go-lucky type", the "melancholic type", the "anxious insecure type" and its rare variant, the "unrealistic dreamy type", and finally, the "nervous tense type") is computed on the basis of the item scores by forming type scores and comparing their height intraindividually. The subject under study is assigned to the type reaching the comparatively highest value. Two raters independently analyzed 261 records from which all information on mental disorders in family members and the patient himself/herself as well as all biographical data from the first manifestation of a symptom disorder onwards had been erased by technical assistants. In 106 of the records, a global assignment to the types of premorbid personality had already been performed by one of the authors of the typology. The scores for the same type assessed by the two ratings correlated highly with each other (0.77 to 0.80), the concordance of types reached a kappa-value of 0.55 ($P < 0.001$), and the results of the operationalized typing agreed in the same order with the result of global typing in the subsample of $n = 106$. The distribution of types over clinical groups (affective, schizoaffective, and schizophrenic psychoses, neurotic and personality disorders) deviated significantly from chance expectancy, well in accord with clinical expectancy and, as far as available, with results of prospective studies on premorbid personality. This points to the clinical validity of the procedure which can therefore be recommended as an adjunct to the questionnaire approach with its limitations regarding diagnostic and prognostic (predictive) validity.

Key words: Premorbid personality – Personality assessment – Case histories – Psychoses – Neuroses – Personality disorders

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Introduction

In a previous paper (Pössl and von Zerssen 1990a), we described a method for the diagnostically blind assignment of psychiatric case history data regarding a patient's family background and premorbid development to two main types of premorbid personality in affectively ill patients. The types were the "melancholic type" (Tellenbach 1961), on the one hand, and the "manic type" (von Zerssen 1977), on the other. The first one was assumed to correspond to the depressive component, the second, however, to the manic component of the illness (von Zerssen 1977, 1988). Preliminary results presented in that paper and further elaborated elsewhere (von Zerssen and Pössl 1990) were in line with this assumption. Yet the number of cases with one of four subtypes of an affective illness (unipolar depressive, bipolar II, bipolar I proper, and "unipolar" manic, i.e. bipolar I with a marked preponderance of manic episodes) was rather small ($n = 42$); furthermore, the two types might not at all be specific for the affectively ill (Tölle et al. 1987), and personality structures other than these two types were disregarded although they might even prevail in affectively ill patients (Tölle et al. 1987); above all, the procedure of assigning the individual cases to the two types was not operationalized so that the results might be suspected to depend strongly on the intuition of the investigator. We have therefore:

1. enlarged the number of records for our analyses,
2. broadened the diagnostic spectrum to include other mental disorders,
3. extended the typology to structures other than the "manic type" and the "melancholic type", and
4. developed an operationalized procedure for the recognition of all these types by investigators involved neither in the initial discovery of types nor in the development of the operationalized procedure.

The extended typology was already outlined in another paper (Pössl and von Zerssen 1990b). Besides the "melancholic type" and the "manic type", the "happy-go-lucky

type" (German: "sorglos-heiterer Typ") was described as a relatively rare variant of the latter. Thus, three instead of two "affective types" could be diagnosed. Furthermore, an "anxious insecure type" ("ängstlich-unsicherer Typ") and, as its rare variant, an "unrealistic dreamy type" ("weltfremd-verträumter Typ") as well as a "nervous tense type" ("nervös-gespannter Typ") became apparent through the study of case notes regarding the family background and premorbid personal development of schizophrenic and neurotic patients. They can be subsumed under the heading "neurotoid types". Among the neurotic group, neurotic depressives usually exhibited either one of these "neurotoid types" or the "melancholic type", which, however, was rarely found in case histories of schizophrenics or patients suffering from an anxiety disorder (contrary to the assumption of Tölle et al. 1987).

Our extended typology was then applied to the recognition of the types in case records ($n = 106$) from which all data concerning mental disorders in family members as well as any information from the first indication of the patient's mental disorder onwards had been eliminated. The disorders were an affective illness ($n = 22$), a schizoaffective ($n = 26$) or a schizophrenic psychosis ($n = 34$). Three patients with other forms of a psychosis were excluded from a comparison of diagnostic groups. In 21 non-psychotic patients, a personality disorder had been diagnosed clinically. The typing procedure was performed as a global assessment without knowledge of the diagnostic composition of the sample. The result was a clear discrimination of the affective and the schizophrenic groups, with the "affective types" ("melancholic type" and "manic/happy-go-lucky type") dominating among the affectively ill, the "neurotoid types", however, prevailing among the schizophrenics, with the schizoaffective psychotics holding an intermediate position. The distribution of types within the personality disorder group resembled that within the group of schizophrenics though with a somewhat higher proportion of the "nervous tense type" (Pössl and von Zerssen 1990b). This result encouraged us to operationalize the typing procedure, to train others in its application and to test the procedure in an enlarged sample of case histories. In this report, we summarize the procedure and its testing from a methodological point of view.

Methods

Typing procedure

In developing an operationalized typing procedure, we had to take into account the large variability in individual biographies as well as in reporting them in psychiatric case records. Moreover, it was important to ensure that all our types, including the rare variants ("happy-go-lucky-type" and "unrealistic dreamy type") of two of the main types ("manic type" and "anxious insecure type"), were sufficiently represented and could be clearly differentiated by the criteria for the diagnosis of the types. However, the practicability of the procedure had also to be kept in mind.

We therefore elaborated first a *list of descriptive items* typically used in carefully written psychiatric case histories and covering the whole range of variability in individual biographies. Furthermore, these items seemed appropriate to characterize our six types of premorbid personality. The items were ordered according to stages of development (childhood/adolescence, adulthood) and certain areas of life (professional training and career, partnership and marital life, etc.).

Finally, the number of items was reduced as far as possible without losing too much information for gaining a differentiated picture of the individual case and, in particular, for discriminating our types on the basis of the individual patterns. This reduction was preferably done by condensing several similar items into 1 more complex item that reflected main features of 1 of the types in question. Thus, we ended up with a list of 106 items in a chronological and logical (but not a "typological") order (cf. Appendix A). This list of rather detailed items which served as a guideline for the rating was supplemented by a list of simplified items for scoring an individual case. For this purpose, the number of descriptive terms per item was reduced and to each of these items, a scale was affixed for scoring absence, presence/degree or lack of information regarding the item in the individual case report (cf. Appendix B).

The next step was the development of the scaling of scores with respect to the type concepts. This was achieved by J. P., who had to score each type theoretically, i.e. with the most typical ("ideal") individual he could conceive in mind. For this purpose, he had to score the items per type along a scale ranging from:

+2 (presence most characteristic for the type) to
–2 (absence very characteristic for the type).

If an item seemed irrelevant for a type, a zero-score had to be used. The item scores were then quantified according to a simple rule (cf. Table 1). In addition to the six type-scales, two scales for the "mixed types" ("manic/happy-go-lucky type" and "anxious insecure/unrealistic dreamy type") were constructed by averaging the item scores for the associated types, however, avoiding indifferent (zero) scores in case of discrepanicies between the associated types by stressing the respective main type in forming the scores (cf. Appendix C).

The item list could be applied in the evaluation of individual case notes without any knowledge of the rela-

Table 1. Scaling of individual items per type

	Completely true	Mainly true	Probably true	Not true	No information
+2	6	4	2	0	0
+1	3	2	1	0	0
0	0	0	0	0	0
–1	0	0	0	1	0
–2	0	0	0	3	0

+2 Positive statement most characteristic for that type
+1 Positive statement rather characteristic for that type
0 Any statement not characteristic for that type
–1 Negative statement rather characteristic for that type
–2 Negative statement very characteristic for that type

tionship between the scoring of the information and the scaling of the scores with respect to the type concepts. The evaluation thus resembles the filling in of a questionnaire by a proband who has no knowledge of its construction. However, a personality questionnaire, even if conceived for peer rating, has to be filled in by laymen without adequate training in the rating procedure and without a specified set of information regarding the person to be rated. Conversely, the rating of the items in our list is executed by trained raters on the basis of a fixed set of information regarding the ratee (written case record). Furthermore, if the record contains no information with respect to a particular item, this is marked explicitly and not concealed by a positive or negative answer as it is usually done in the case of personality questionnaires. Distortions of the picture of the ratee by such meaningless responses are thus prevented by our approach which is in some respect more similar to ratings based on interviews than to the questionnaire type of assessment. However, the rating is limited to the information stored in the case notes. Anyhow, a lack of information is made explicit by a score in the respective category ("no information"); the sum of these scores is thus an inverse measure of the richness of information about a particular patient's history.

After a check of the completeness of the rating, the list is forwarded to a standardized data processing. This performance can be greatly facilitated by means of a computer. First the item scores per type (including the "mixed types") are computed and summed up resulting in raw scores for each type. These scores are then expressed as percentages of the theoretical maximum score per type in order to minimize the differences between the sum-scores of item sets of varying length. (Theoretically, the raw score for, e.g., the "nervous tense type" could reach a maximum of 327 points, that for the "manic/happy-go-lucky type", however, could only achieve a value of 233 points). The per cent values are designated as "type scores". They can be used as dimensional measures of the constructs in question, analogous to the scale values of personality questionnaires.

However, the inter-individual comparison of our type-scores is hampered by the large range of the amount of biographical information available in different case records (due to differences in age at onset of the disorder, premorbid life style, patient's memory and compliance in the biographical interview, exhaustiveness of the enquiry and its recording, etc.). For this reason, the type dominating in a subject is ascertained by means of an intra-individual comparison of type-scores and the subject is then assigned to that type. This way of typing individuals on the basis of a kind of "pattern recognition" is similar to the intuitive approach of a clinician in diagnosing a specific mental disorder according to the predominating pattern of signs and symptoms in the individual patient.

In rare cases, two or more type-scores are equally high. Then the algorithm choses among these scores according to the sequence of the theoretical maximum score:

a) "nervous tense type"
b) "melancholic type"
c) "anxious insecure/unrealistic dreamy type"
d) "manic/happy-go-lucky type".

Since equal scores for different types are rare, the results are not markedly different when the sequence is reversed. The main purpose of this forced assignment procedure is that every case receives one and only one type diagnosis and none remains undiagnosed. One could certainly choose other methods to deal with the problem of doubtful cases. However, our approach seems to be the simplest solution which also has the advantage that no cases are lost for the data analysis and no additional categories of "uncharacteristic" or "mixed" cases have to be introduced. (Mind that both of these alternative solutions would diminish the n per cell of the contingency tables.)

Raters' training and rating performance

As it was intended not only to test the practicability of the operationalized procedure but also its reliability, i.e. the reproducibility of results obtained by independent raters on the basis of the same material, two raters had to apply the method without any communication with each other. At the time of training, 1 was an advanced student of medicine (R.T.), the other 1 a physician in training at a psychosomatically oriented private hospital (S.G.). Both of them performed the task within their medical dissertations (Gruben 1993; Tauscher 1993). They were trained independently in the rating procedure by J.P., of them (R.T.) was also informed about our typology of premorbid personality, the other one (S.G.), however, had no idea about the constructs under investigation and both of them were not familiar with the literature on the subject before they had finished the ratings. The two had no personal contact with each other during the study.

Copies of case records were handed over to them in random order but in different sequences. When they had completed the files they turned them back to our staff for data handling. The further typing procedure was then computed according to a program written by the last author of this paper. The algorithm which the first two authors had conceived is outlined above under "Typing Procedure".

Within his dissertation, the main task of R.T. was to analyse the relationship between the operationally defined types and the types assessed globally by J.P. in the subset of $n = 106$ (Pössl and von Zerssen 1990b) as well as that between the operationally defined types and clinical diagnoses in the total set of $n = 261$ (cf. "Material"). He neither knew the results of the global rating nor the diagnoses of cases before he terminated all the ratings. This was also true for S.G. whose main task was a more thorough analysis of methodological aspects of the operationalized typing procedure based in particular on a comparison of the results obtained by him and by R.T..

It has to be mentioned in this context that, while R.T. followed J.P.'s advices for the rating procedure quite strictly, S.G. introduced some modifications in the intention

1) to increase the reliability of the method, and
2) to utilize as much information as possible.

For these reasons, he

1) defined the degrees of the item-scores by the proportion of the descriptive terms per item (cf. Appendix A) that applied to the case history under study and
2) performed a forced rating in case of insufficient information on an item by means of inferences from the whole context of the report.

Material

The operational typing procedure was applied to biographical case records concerning inpatients of the former Psychiatric Department of the Max-Planck-Institute of Psychiatry (MPI-P). The text of each record had been carefully screened beforehand by persons not involved in the rating procedure, and all information on mental disorders in family members as well as data from the time of the first appearence of symptoms of a mental disorder onwards (in the sense of a symptom disorder, not a mere deviation in a subject's lifestyle) had been erased. Thus, only information on family background and personal development of a patient was available to the raters. If the remaining (type-written) text covered less than 1.5 pages (not counting the free space left by sentences eliminated for the reasons stated above), the respective record was excluded by the person who had to prepare the text. Thus, approximately 80% of the records under screening could be used for the assignment of personality types. None of them had been used for the discovery of types (by J.P.). However, J.P. had performed a global rating of types in a large proportion of these records (cf. Pössl and von Zerssen 1990a/b).

All the records had been written by the attending psychiatrist or a clinical psychologist in a purely descriptive manner avoiding terms or interpretations derived from psychiatric, psychoanalytic or psychological theories. The respective text represented a plain form of the patient's report on his/her biography, in part of the cases supplemented by information obtained from relatives or other persons from the patient's social environment (spouse, friend etc.). A usually brief description of the family of origin was followed by a record of major life circumstances and events (concerning home of residence, kindergarden, school, professional training and career, marriage, etc.). The last and usually most extensive part referred to inner experiences (thoughts, feelings, motives) and behaviours in the course of the patient's life, stressing his/her social interactions. Personality traits proper were rarely mentioned and if so, only in popular language. These traits had to be inferred from the text by the rater on the basis of the whole text using the item list described above (cf. also Appendix A).

A total of 261 case records was recruited for the study. The majority of them (n = 182) referred to patients from a large-scale 5- to 8-year follow-up investigation, the Munich Follow-up Study (MFS; cf. Möller et al. 1989; Wittchen and von Zerssen 1988; von Zerssen and Hecht 1987). They included the 106 records for which a global rating of types was already published (Pössl and von Zerssen 1990b). Forty-two records, 1 of them identical with 1 of the 182 records from the MFS, had also been rated globally, however, only with respect to the "manic type" and the "melancholic type" in subtypes of an affective illness (Pössl and von Zerssen 1990a; von Zerssen and Pössl 1990); seventeen records concerned patients of a project on the chronobiology of depression (von Zerssen et al. 1987). Twenty additional cases were selected for this project in a search for cases with "unipolar" mania according to the above definition (manic to depressive episodes ≥ 4:1) whereas in our clinical practice, a more stringent definition (namely a ratio of at least 5:1) had been used. This selection procedure, which had also been applied to the series of n = 42, resulted in the inclusion of a relatively high proportion of bipolar I disorders which just failed our criterion for "unipolar" mania, e.g. by exhibiting more manic than depressive episodes, however, only in a ratio of 3.5:1 or less. Conversely, the bipolar II group comprised several cases that had developed a slight hypomanic state under antidepressant drug treatment of a so far unipolar recurrent depression and thus displayed a marked preponderance of purely depressive episodes.

An excerpt of anamnestic data was made from the first record even if a patient had several readmissions. The diagnosis, however, was based on all information available; in the case of subjects from the MFS the final diagnosis at follow-up which took into account all previous diagnoses and the results of the follow-up interview was chosen as the most probable one. More than half of the cases had a diagnosis of an affective disorder in a broader sense, i.e. an affective psychosis (n = 104) or a neurotic form of depression (n = 33). The others suffered from a schizophrenic (n = 34) or a schizoaffective psychosis (n = 27; further 3 psychotics were also included in this group because they neither suffered from an affective nor a schizophrenic psychosis proper); in 39 cases the (follow-up) diagnosis was that of an anxiety disorder, i.e. phobia (n = 24)

Table 2. Distribution of the sample according to diagnosis, gender and age

Diagnosis		Abbreviation	ICD-9 no.	n	Gender (% f)	Age in years (mean and range)	
1.	Affective psychosis	AffP	296	104	55	41.9	19–70
1.1	"unipolar" mania	"up"M	296.0,2[a]	26	54	41.4	19–67
1.2	bipolar I manic-depressive psychosis	bpI	296.2–8[b]	21	57	39.6	23–61
1.3	bipolar II manic-depressive psychosis	bpII	296.3–8[c]	21	52	37.5	23–56
1.4	unipolar depression	upD	296.1	36	56	46.1	22–70
2.	Neurotic depression	nD	300.4	33	52	34.5	20–55
3.	Schizoaffective psychosis[d]	SaffP	295.7	30	77	37.8	21–61
4.	Schizophrenic psychosis	Sc	295[d]	34	35	31.2	20–50
5.	Anxiety disorder	AD	300.0,2	39	44	32.7	20–53
5.1	anxiety neurosis	AN	300.0	15	47	33.7	21–49
5.2	phobia	Ph	300.2	24	42	32.1	20–53
6.	Personality disorder	PD	301	21	48	31.8	20–46
1.–6.	Functional mental disorders		295–301	261	52	36.9	19–70

[a] Addition: manic to depressive episodes ≥ 4:1 (lifetime)
[b] Addition: depression + mania (lifetime)
[c] Addition: depression + hypomania (lifetime)
[d] This group includes 3 cases with other psychoses (paranoid psychosis or transient schizophrenic reaction)

or anxiety neurosis ($n = 15$), and in 21 cases, a personality disorder with or without a secondary non-psychotic disorder (e.g. substance abuse, adjustment disorder, etc.) had been diagnosed at index hospitalization and follow-up. Other disorders were not accepted for the study, thus excluding, among others, all mental disorders of an organic origin (ICD-9 nos. 290–294 and 310), alcohol or drug dependence (303 and 304), and all degrees of mental retardation (317–319). The distribution of diagnoses, together with the distributions of gender and age, is presented in Table 2.

Statistical data analysis

In this paper, we refer to the main properties of the operationalized typing procedure, namely practicability, reliability, and validity (cf. Cohen et al. 1988; Lienert 1991). The validation of the typing procedure is considered here only with respect to the comparison of the results with external criteria (i.e. global assessment of types by another investigator, and clinical diagnoses). Further aspects of validation, in particular with respect to the type constructs, are dealt with in an another paper (von Zerssen 1994b). The statistical techniques used for our data analyses, are standard procedures of the program package STAMEB (Barthelmes and Pfister 1980). As measures of association, we employed

1. Pearson's product moment correlation coefficient for quantitative data (type-scores),
2. per cent agreement and kappa-values for qualitative data (types, clinical diagnoses).

Multiple group differences were computed by means of the Chi-square-technique. The 5 per cent level in two-tailed tests was accepted as indicating significance. A correction for multiple testing was not performed because the critical P-value of all results relevant with respect to reliability or validity of our typing procedure were below 1 per mill.

Results

Practicability

It turned out that it was feasible in all cases to fill in the item list though often not completely because of insufficient information. R.T. therefore used the category "no information" relatively often, whereas S.G. tried to avoid this category and instead used either the categories "probably true" or "not true" more often. Consequently, the type-scores resulting from his ratings tended to be higher (on an average by about 50 per cent) although he preferred the weaker category "probably true" compared with R.T., who scored more items as "completely true" or "mainly true". The time for rating one record was estimated by both raters as varying between half an hour and 1 hour, depending on the amount of information and (inversely) on the clarity of the description of a subject's life. Thus, the practicability of the method can be regarded as sufficient.

Reliability

The reliability was calculated as the inter-rater agreement in two different ways:

Table 3. Product moment correlation[a] between type scores of Gruben's and Tauscher's ratings ($n = 261$)

		Tauscher's rating			
		man/h-g-l t	mel t	a-i/u-d t	n-t t
Gruben's rating	man/h-g-l t	**0.77**	−0.32	−0.54	0.41
	mel t	−0.44	**0.78**	0.41	−0.60
	a-i/u-d t	−0.59	0.52	**0.79**	−0.28
	n-t t	0.50	−0.53	−0.29	**0.80**

man/h-g-l t = "manic/happy-go-lucky type", mel t = "melancholic type", a-i/u-d t = "anxious insecure/unrealistic dreamy type", n-t t = "nervous tense type"

[a] All values significant at $P < 0.001$; values of $r > 0.70$ in bold type

1) as the correlation between the quantitative scores per type and
2) as the concordance of the assignment of cases to the qualitative type categories by means of the algorithmic typing procedure. Of the several measures of concordance which were computed, only the per cent agreement and kappa values are presented here.

ad 1) Because of the rareness of the variants of the "manic type" (the "happy-go-lucky type") and the "anxious insecure type" (the "unrealistic dreamy type"), the scores for the two mixed types, together with the scores for the "melancholic type" and the "nervous tense type", served as measures for calculating the correlations between the two independent ratings and for typing the individual case (as belonging to one of the four types).

The correlation of type scores yielded a remarkably high coefficient for the corresponding types (cf. Table 3). The critical P-values are all below 0.001. Apparently, the modifications introduced in the rating procedure by S.G. affected the scores in a systematic manner, so that the ranking of corresponding scores was similar in the two ratings. Beyond the correlations between corresponding types, there are significant associations among different types. This, however, does not devaluate the clearly stronger associations between the scores for corresponding types because of conceptual relationships between certain types (with respect to the "manic type" and the "melancholic type", cf. Pössl and von Zerssen 1990a; von Zerssen 1977, 1980).

ad 2) the concordance between the two raters regarding the 4 types (2 pure and 2 mixed types) is presented in Table 4. Almost exactly two thirds of cases instead of roughly one fourth to be expected by chance were assigned to the same type. The kappavalue of 0.55 can be regarded as indicating moderate (better than fair) agreement according to a suggestion by Landis and Koch (1977). Due to the high n, the critical P-value is below 0.001. The concordance is best for the "manic type" and worst for the "melancholic type" as well as for the "anxious insecure type". S.G.'s rating led significantly more often to the diagnosis of the "melancholic type", mainly at the expense of the "anxious insecure type". When the sequence of type scores per case was analysed in detail (cf. Gruben 1993), it turned out that

Table 4. Concordance of the assignments to types according to Gruben's and Tauscher's ratings

		Tauscher's rating[a]				
		manlh-g-l t	mel t	a-i/u-d t	n-t t	Σ
Gruben's rating	manlh-g-l t	**58** (23)	1 (17)	2 (23)	10 (7)	71
	mel t	21 (36)	**56** (27)	32 (37)	2 (12)	111
	a-i/u-d t	3 (20)	6 (15)	**49** (20)	2 (6)	60
	n-t t	3 (6)	0 (5)	3 (6)	**13** (2)	19
	Σ	85	63	86	27	261

Agreement = 67.4%; kappa = 0.55; $P < 0.001$
Abbreviations cf. legend of Table 3
[a] Expectancy values (e) in brackets; observed values > 1.5 e in bold type

Table 5. Concordance of the assignment to types with the original global assignment by Pössl (n = 106)

a) According to Gruben's ratings (G)[a]

		manlh-g-l t	mel t	a-i/u-d t	n-t t	Σ_P
Pössl's global assignment[a] (P)	manlh-g-l t	**14** (4)	5 (7)	0 (6)	0 (3)	19
	mel t	1 (4)	**18** (7)	0 (6)	0 (3)	19
	a-i/u-d t	9 (9)	12 (17)	**28** (13)	5 (6)	45
	n-t t	6 (5)	5 (9)	3 (7)	**9** (3)	23
	Σ_G	21	40	31	14	106

Agreement = 65.1%; kappa = 0.53; $P < 0.001$

b) According to Tauscher's ratings (T)[a]

		manlh-g-l t	mel t	a-i/u-d t	n-t t	Σ_P
Pössl's global assignment[a] (P)	manlh-g-l t	**15** (5)	2 (4)	2 (7)	0 (3)	19
	mel t	5 (5)	**13** (4)	1 (7)	0 (3)	19
	a-i/u-d t	3 (13)	6 (10)	**34** (17)	2 (6)	45
	n-t t	7 (7)	2 (5)	2 (9)	**12** (3)	23
	Σ_T	30	23	39	14	106

Agreement = 69.8%; kappa = 0.58; $P < 0.001$
Abbreviations cf. legend of Table 3
[a] Expectancy values (e) in brackets; observed values > 1.5 e in bold type

this discrepancy resulted mainly from cases with only minor differences in scores for the "melancholic type" and the "anxious insecure type". (Mind that the scores for these types correlate positively with each other in the total material; cf. Table 4!). However, while S.G. tended to obtain slightly higher scores for the "melancholic type", R.T.'s rating exhibited an opposite trend. Which of the two ratings is the more valid one, cannot be judged from this comparison without using an external criterion (see below).

Validity

Two criteria were applied to judge the validity of the ratings; 1 was the agreement with the results obtained earlier by J.P. on the basis of a global rating. This was considered as kind of a "gold standard" because here the rater was identical with one of the authors who had conceived the types (cf. Pössl and von Zerssen 1990 a/b) and because the results were basically concordant with results of other clinical as well as epidemiological research on the premorbid personality of psychiatric patients, including a large body of prospective studies (cf. von Zerssen 1993). The other criterion of validity was the discrimination of different diagnostic groups by means of the operationally defined personality types.

The concordance of the ratings by S.G. and R.T. with those by J.P. in the subsample of n = 106 is presented in Table 5. Both raters agree with J.P. in approximately two thirds of cases, i.e. to the same degree as they agree with each other in the total sample of n = 261. The kappa-values of 0.53 and 0.58 are both significant with a critical P-value below < 0.001. On the whole, R.T.'s ratings led to a slightly higher concordance with J.P.'s global assessment of types, compared with S.G.'s ratings, particularly regarding the "melancholic type" which was overestimated, and the "anxious insecure type" which was underestimated by both raters in comparison with J.P., but less so by R.T. than by S.G. (who, however, obtained a somewhat higher degree of agreement with J.P. regarding the "manic type").

The distribution of types over the diagnostic groups was analyzed by means of the χ^2-technique. In order to achieve expectancy values of at least 5 for each of the cell

Table 6. Distribution of premorbid personality types over diagnoses ($n = 261$)

a) According to Gruben's ratings (G)[a]

Diagnoses (D)	Abbreviation	ICD-9 no.	man/h-g-l t	mel t	"Neurotoid types"	Σ_D
1. Affective psychoses						
1.1 with mania	"up"M + bpI	296.0,2–8	**27** (13)	13 (20)	7 (14)	47
1.1 without mania	upD + bpII	296.1,3–8	7 (16)	**46** (24)	4 (17)	57
2. Partially affective disorders						
2.1 neurotic depression	nD	300.4	9 (9)	15 (14)	9 (10)	33
2.2 schizoaffective psychoses	S.aff.	295.7	9 (8)	9 (13)	12 (9)	30
3. Non-affective disorders						
3.1 schizophrenia	Sc	295	7 (9)	11 (15)	**16** (10)	34
3.2 anxiety disorders	AN + Ph	300.0,2	10 (11)	14 (17)	15 (12)	39
3.3 personality disorders	PD	301	2 (6)	3 (9)	**16** (6)	21
1.–3. Functional mental disorders		295–301 Σ_G	71	111	79	261

$\chi^2 = 85.42$; $df = 12$; $P < 0.001$

b) According to Tauscher's ratings (T)[a]

Diagnoses (D)	Abbreviation	ICD-9 no.	man/h-g-l t	mel t	"Neurotoid types"	Σ_D
1. Affective psychoses						
1.1 with mania	"up"M + bpI	296.0,2–8	**32** (15)	6 (11)	9 (20)	47
1.1 without mania	upD + bpII	296.1,3–8	12 (19)	**37** (14)	8 (25)	57
2. Partially affective disorders						
2.1 neurotic depression	nD	300.4	9 (11)	6 (8)	18 (14)	33
2.2 schizoaffective psychoses	S.aff.	295.7	10 (10)	7 (7)	13 (13)	30
3. Non-affective disorders						
3.1 schizophrenia	Sc	295	11 (11)	1 (8)	22 (15)	34
3.2 anxiety disorders	AN + Ph	300.0,2	8 (13)	3 (9)	**28** (17)	39
3.3 personality disorders	PD	301	3 (7)	3 (5)	**15** (9)	21
1.–3. Functional mental disorders		295–301 Σ_T	85	63	113	261

$\chi^2 = 111.85$; $df = 12$; $P < 0.001$

[a] Expectancy values (e) in brackets; observed values > 1.5 e in bold type

of the χ^2-table, we had to combine the "neurotoid types" to form only one category whereas this was not necessary for the two "affective types". (Mind that one of them is defined as a "mixed type", so that there are only two instead of three "affective types"!). The subtyping of clinical groups was also limited by the expectancy values. Therefore, we could not differentiate four subtypes of an affective illness as mentioned in the introduction and listed in Table 2; rather we formed two groups which, according to findings reported earlier (von Zerssen and Pössl 1990), should differ markedly in the ratio of the two "affective types". Furthermore, due to the small n, we could not differentiate anxiety disorders into phobias and anxiety neuroses.

As can be seen in Table 6, the diagnostic categories can be grouped in such a way that all affective psychoses (unipolar as well as all bipolar groups) are contrasted with non-affective disorders (schizophrenia, anxiety disorders, and personality disorders), leaving an intermediate group of partially affective disorders (neurotic forms of depression and schizoaffective psychoses). In these higher order groups as well as in the subgroups which they consist of, clear differences emerge for personality ratings by S.G. (a) and R.T. (b). Although the prevalence rates for the personality types differ markedly in both ratings, their distribution over the diagnostic subgroups shows the same tendencies: The "affective types" ("manic/happy-go-lucky type" and "melancholic type") prevail in the group of affective psychoses, the "neurotoid types", however, in the groups of non-affective disorders with the intermediate groups lying in between these contrasting groups with respect to the frequencies of the types.

Within the subgroups of affective psychoses, there is a pronounced difference between the combined groups of unipolar depression and bipolar-II disorder compared with "unipolar" mania and bipolar-I disorder proper (cf. von Zerssen and Pössl 1990). It is in the expected direction with a marked preponderence of the "melancholic type" in depressions *without* mania and a predominance of the "manic/happy-go-lucky type" in the groups *with* mania.

Within the non-affective groups, the higher prevalence of "neurotoid" types compared with the "affective types" and a relatively high proportion of the "nervous tense

type" is particularly pronounced in personality disorders, a result which is in line with our previous findings based on a global rating of types (Pössl and von Zerssen 1990b). Since also the distribution of types over the groups of psychotic disorders is concordant with earlier findings from different centres (Kröber 1988; Marneros et al. 1991; Pössl and von Zerssen 1990b), our results point to the validity of the operational typing procedure.

Discussion

The major result of the study is that an operationalized procedure of assessing premorbid personality types from psychiatric case histories is feasible and can be performed by trained raters with a remarkable degree of reliability. Adequate training may be more important than extensive clincial experience because one of our raters was still a student of medicine when he performed the ratings and the other 1 who had already finished his studies and was working at a hospital had no special experience with psychiatric patients.

In view of the concordance of their ratings with earlier findings on the basis of a global assessment of personality types and their convergent findings with respect to differences in the premorbid personality between diagnostic groups, the results obtained by the two raters can be regarded as valid. However, certain distortions due to

1. raters'
2. patient's bias, and
3. biases inherent in taking and writing case histories of mental patients

have to be taken into account when interpreting the results.

1. Apparently, one of the raters (S.G.) had a certain bias in favour of traits of the "melancholic type" in comparison with the other rater (R.T.) and J.P. This was probably at least partly due to his forced rating of items in spite of insufficient information. Analogous distortions may occur in ratings by other investigators.

2. Patients' memory may be affected by their illness or the patients may not be willing to report correctly what they remember. For this reason, the reports are often complemented by those of informants (usually spouses or close relatives). Yet, such information cannot always be obtained and was, indeed, lacking in the majority of our records.

3. The psychiatrist or clinical psychologist in charge of a patient may not be motivated or competent for an appropriate enquiry of the patient's premorbid history including the family background and/or for a correct documentation of the results of this enquiry. Furthermore, he or she may be theoretically biased and may, for instance, underestimate the importance of the premorbid history in psychotics so that the respective case records are less detailed in this respect than those of, e.g., neurotics or addicts. Finally, he or she may be guided in the patient's interview or its documentation by psychoanalytic or behavioural theories or may try to interpret the findings from such a point of view, thus introducing preconceived concepts in the case report.

We cannot exclude these biases completely in the material analyzed in this study but their influence on the results should not be overrated for the following reasons:

ad 1: The rater's bias does not depend on the kind of disorder under study when the rating is performed in the way described in this paper. It can therefore hardly explain differences between diagnostic groups.

ad 2: In case of additional reports on a patient's premorbid development or family background given by informants, there was usually good agreement with the patient's self-report. Thus, it is unlikely that these self-reports were profoundly influenced by the patients' mental state. In case of paucity of information which may indicate a patient's unwillingness or unability to give a detailed report of his/her life before the onset of his/her mental disorder, the records were not included in our study (cf. section on "Material").

ad 3: As stated above (cf. "Material"), the co-workers of the former Psychiatric Department of the MPI-P had been trained to elicit a comprehensive outline of the patient's premorbid history (including family background) from the patient and, if possible, from informants. They did not, however, receive any training in assessing personality traits or types nor were they instructed in theories of personality and personality development, unless during psychoanalytic training outside the Institute. The reports on a patient's family life and personal development had to be written in a narrative style avoiding theoretical terms and interpretations. This was, indeed, the case in all records under study.

A further argument against the assumption of a strong bias of reporting is the fact that the results so far obtained on the basis of a global assessment of types in part of the material (n = 106) were more in agreement with the results of prospective studies on premorbid personality traits in psychotics than with widespread assumptions held by clinicians including psychoanalysts, e.g. regarding the frequency of schizoid and/or schizotypal traits among schizophrenics. These traits were rarely found in prospective (cf. Asarnow 1988) or retrospective-prospective ("follow-back") studies (e.g. Watt et al. 1970) but they still dominate the psychiatric literature since the times of Kretschmer (1921). The two patterns which we ascertained most often in schizophrenics (the "anxious insecure type" and the "nervous tense type") resemble the two main patterns prospectively revealed in pre-schizophrenics (cf. von Zerssen, 1993).

The validity of case history information is further indicated by its relatively high predictive power compared with questionnaire data in follow-up studies on schizophrenics (Möller and von Zerssen 1986) and by the basic concordance of our findings with those of 2 independent studies by other authors who made use of case history data for the assessment of personality types (Tölle 1988 and Marneros et al. 1991; cf. von Zerssen 1991, 1992). With respect to our rating procedure, the introduction of modifications of the guidelines by one of the raters (S.G.) did not result in an increase in validity. On the contrary, the concordance with the original (global) assessment of

types by J.P. which served as kind of a "gold standard" was somewhat higher for the other rater who strictly followed the instructions. The same applies to the discrimination of diagnostic groups by the premorbid personality types resulting from the ratings. There may be other modifications of the rating procedure that would, indeed, lead to a higher degree of reliability as well as validity of the ratings. However, this would have to be proved empirically in comparison with the standard procedure.

Our positive results concerning premorbid personality in subtypes of an affective illness have meanwhile been confirmed by a similar investigation of almost 400 case notes on patients with affective or schizoaffective psychoses at the Research Centre in Zurich under J. Angst. Nonetheless, we have developed a method which reduces biases on part of patient, interviewer, and rater, the Biographical Personality Interview (BPI)[1] (cf. von Zerssen 1994b). The results obtained so far look very promising. However, in view of the manpower that has to be invested in the application of this method, the procedure outlined in this paper still seems a worthwhile technique for the assessment of premorbid personality in psychiatric patients. It should replace the purely intuitive approach of assessment when testing clinical hypotheses regarding personality as a vulnerability factor in mental disorders or the relationship between normal and abnormal variants of personality (cf. von Zerssen 1993) and should supplement the rather reliable but often not very informative and not very valid questionnaire approach (cf. von Zerssen 1994a, b).

[1] We are indepted to the Deutsche Forschungsgemeinschaft (DFG) for financial support of this project

Appendix A. List of detailed items for rating premorbid case history data

1 Childhood and early adolescence
1.1 Temperament/character
1.1.1 lively; active; strong-willed; bright; boisterous; merry; cheerful; demands attention and care from adults
1.1.2 calm; serious; reserved; unobtrusive; lacks vivacity; quiet; passive
1.1.3 overly well-behaved; extremely conformist; submissive
1.1.4 unstable health; weak constitution; sickly
1.1.5 difficult; unfriendly; obstinate; defiant; impudent; aggressive
1.1.6 nervous; restless; hyperactive; lacks concentration; impulsive; high-strung; bites nails
1.1.7 learned to speak and walk early (early developer)
1.1.8 plays pranks on people or incites other children to do so
1.1.9 obedient; well-behaved; honest; sincere; cannot do anyone or anything (animals) any harm; not a ringleader
1.1.10 very imaginative; makes up own fairy tales and other stories; devises imaginative lies and excuses
1.1.11 timid; insecure; timorous; inhibited; lachrymose
1.1.12 suffers from sleep disturbances, nightmares; fears darkness; suffers from enuresis; afraid of being alone; fears separation
1.1.13 disobedient and rebellious; often lies; has committed petty thefts; swindles; often runs away from home; plays truant from school; often involved in fights
1.1.14 sensitive; vulnerable
1.1.15 dreamy; introverted; absent-minded; difficult to approach

1.2 Social contacts
1.2.1 sociable; has many but varying playmates; leader and instigator in group activities
1.2.2 few but close and lasting friendships; follower; well integrated but inconspicuous
1.2.3 outsider; feels out of place; often in the role of a whipping-boy; gets teased, laughed at by other children; always plays a subordinate role; unable to assert him-/herself in the group
1.2.4 aggressive; quarrelsome; uncooperative; feared by other children; hence, lacks close friendships; tries to dominate other children, preferably younger ones
1.2.5 well able to occupy him-/herself; prefers to play alone; reserved; difficult to approach
1.2.6 shy; timid; hence, little contact with other children of his/her age

2 Early environment and relationship to parents
2.1 grew up in broken home: divorce of parents; illegitimate birth; death of one parent; sole rearing by separated, working mother; multiple rearing: mother, grandparents, foster-parents; orphanage; boarding school
2.2 symbiotic relationship to one parent (father-daughter or mother-son) until adulthood, making later contacts to the opposite sex difficult
2.3 tense relationship between parents; frequent quarrels; conflicts between parents carried out on the backs of the children
2.4 dominant role of one parent or other person involved in child-rearing: high demands on child; on the whole, authoritarian and highly restrictive upbringing
2.5 little affection; parents had little time for their children (e.g. are preoccupied with their profession); frequent corporal punishment;
2.6 as a child, pampered and overprotected; shielded from environment; parents live quite secluded and are anxious and insecure themselves
2.7 in adolescence, relatively early and usually sudden severing of ties with home; frequent quarrels with parents; dissociates him-/herself from parents' attitudes; feels dominated and restricted by parents
2.8 close family cohesion; close ties to home maintained in adulthood; to a large degree, adoption of parents' views and attitudes; feels secure in his/her family; problems, however, are never openly dealt with

3 Education and vocational training
3.1 usually above-average aptitude and intelligence; fair results at school, achieved with little effort; easy learner; nevertheless, easily distractable and unable to persevere
3.2 good results at school, mainly due to great diligence; all work is done correctly and completely; very orderly
3.3 has favourite subjects at school; particular talents in music, languages, natural sciences or sports; many special interests outside school
3.4 uniform performance in all subjects; practical abilities; no favourite subjects at school or other interests
3.5 below-average or average results at school despite good will and great efforts; finds lessons too difficult to follow; has difficulties in meeting demands
3.6 school is considered frightening and burdensome; afraid of exams and of speaking out in class
3.7 poor performance at school; lazy; lacks concentration; without interest and motivation in class; not willing to meet school demands; undisciplined

3.8 model pupil; on very good terms with teachers

4 Profession/occupation

4.1 often voluntary change of educational course or training, mainly due to lack of interest; future occupation not always in line with education and training

4.2 continuity with regard to education and training; interrupts or breaks off training only if forced to; a course once started is finished, even if he/she has lost interest

4.3 unusual occupations, often in the field of arts/culture (actor); jobs demanding sociability (salesman) or frequent travelling (stewardess); often self-employed; frequent voluntary changes of job/working places

4.4 conventional occupations (secretary, book-keeper), with emphasis on security; pleasure derived from occupation is of secondary importance; very loyal towards employer; changes occupation or place of work only involuntarily and if absolutely necessary

4.5 ambitious; strives for success; creative; strives to attain leadership positions; has difficulties in subordinating him-/herself; high-flying goals; tends to make risky professional decisions; aims at spectacular success; strives for independence

4.6 industrious; conscientious; reliable; orderly (keeps his/her desk tidy); tries to do everything correctly; works overtime; takes on colleagues' work; is unwilling to delegate part of his/her work to others; usually overtaxed in leading positions, but often the boss's "right-hand"; affable colleague

4.7 social descent as compared to social position of parents and siblings; poor occupational qualifications: poor school marks; training or university course often broken off; has difficulties in finding any kind of work; often only temporary jobs; unemployment

4.8 easily overtaxed; has difficulties in meeting demands of job; cannot take on much pressure; job-related anxiety

4.9 continually dissatisfied with her/his job but has no concrete alternatives or cannot realize them; places high demands but has little or inadequate abilities

4.10 uncooperative; little willingness to compromise; unpopular; finds it difficult to integrate him-/herself into a team/group; always suspects others to be rivals/competitors

5 Role as a housewife and mother

5.1 does not feel fully occupied and satisfied in this role; tries to return to her job or becomes engaged in activities outside her family (e.g. social work)

5.2 is taken up by this role; reliable and conscientious in fulfilling household duties; solicitous; devotes herself completely to her family

5.3 has difficulties in managing household; feels overtaxed, particularly with respect to child rearing; depends on her husband's help

5.4 feels extremely unsatisfied and unhappy in this role; neglects household; feels burdened and restricted by her role as a housewife and mother

6 Marriage

6.1 highly tense relationship; frequent quarrels; constant separations from and reunions with the same partner

6.2 assumes subordinate role in marriage; remains unindependent; clings to partner; very jealous; fears being left; masochistic tendencies; seeks security and protection; needs loving care; extremely dependent on partner

6.3 does not want to bind him-/herself; initiative for marriage taken by partner; extramarital relationships likely; in case of partnership problems, tendency towards separation; easily feels restricted; forever in search of ideal partnership

6.4 takes marriage and family very seriously; strives for a close and harmonious family life; takes family obligations very seriously (role as breadwinner or housewife); strives to maintain marriage at all cost; finds it very hard to forgive an indiscretion of partner and will bear a long-lasting grudge; on the other hand, own unfaithfulness (should it occur) is accompanied by heavy pangs of conscience

7 Sexuality

7.1 great difficulties in establishing contacts; shy; timid; strong inhibitions; hardly attends any social events where adolescents usually establish contacts

7.2 sexuality is tabooed and rejected; men: afraid of impotence; women: often frigid; if possible, heterosexual contacts are avoided (even in marriage)

7.3 frequent sexual contacts, though without emotional involvement; as for men, sexual contacts often confined to prostitutes

7.4 strong feelings of inferiority with regard to beauty and attractiveness or strength, masculinity and adroitness (e.g. dancing)

7.5 free, unconstrained attitude towards sexuality; varied sexual life (eager to experiment); often and easily falls passionately in love

7.6 no pronounced need for sexuality; conventional sex life without passion, though strong negative emotions are also missing

8 Relationship to his/her children

8.1 Generous and permissive attitude in child-rearing; might be too carefree and unconcerned in this respect

8.2 father: dominating, strict, even authoritarian; mother: caring, devotional; tends to overaccentuate material care of children and to neglect emotional aspects

8.3 ambivalent attitude towards own children; on the one hand, children seen as a burden; on the other, their existence serves for the satisfaction of certain needs (tenderness, sense of life, etc.)

8.4 in child rearing timid, insecure, anxious; feels overtaxed; very much afraid of making mistakes

9 Social contacts and patterns of social interaction

9.1 in social life awkward and insecure; has only few social contacts; timid, shy

9.2 strong distrust of everybody; feels misunderstood; easily offended; on the other hand, provocative, overcritical, ironic, and cynical

9.3 very submissive, always gives in; dependent and helpless; avoids confrontation

9.4 aggressive; quarrelsome; quick to feel attacked and to suspect others of being rivals/competitors

9.5 self-satisfied; feels little need for or interest in establishing social contacts; prefers to live secluded in own world

9.6 has a large and constantly growing circle of acquaintances; emotional contacts tend to be superficial; deeply involved in organizational and representative functions as a member of clubs and associations

9.7 affectionless and aloof; very reserved; overbearing; indifferent to the feelings of others; arrogant and unfriendly

9.8 loves to be in the midst of many people; sociable; vain; likes to be the centre of interest; charming; entertaining; funny; showy; extravagant appearance; "play actor": likes to put on a show

9.9 feels better among a smaller group of people (family); few but close friendships; prefers to keep in the background

9.10 is easily offended and will then withdraw; very touchy; likes to nag

9.11 egocentric; dominating; seeks confrontation; provocative; easily angered, but not grudging; obtrusive; rather insensitive; lacks empathy

9.12 strives for harmony; avoids disputes; considerate; very helpful but often too solicitous; tries to please everybody; can be (secretly) quite unforgiving

9.13 secludes him-/herself; lives in own world

10 Attitude towards life, standard of values, identity

10.1 pleasure-seeking; generous; lavish; susceptible to financial speculation; inclination to luxury and extravagance (e.g. with regard to clothing, furniture)

10.2 economical; modest; self-sufficient; money regarded as security; saves e.g. for own home; is very uncomfortable about incurring debt

10.3 leaves initiative to others; very hesitant; does not dare to change the status quo, even if it is felt to be burdensome

10.4 strives for security; cautious; avoids risks; clings to all that is familiar; has difficulties in adapting to rapidly changing conditions; changes address only if forced to; strong ties to home and native region

10.5 lacks perseverance and patience; strong inner agitation/restlessness; continually dissatisfied, yet without goals or plans; leads a restless/unsettled life; feels nowhere at home; continually seeks new attractions

10.6 has romantic ideas; lives in an idealistic dream world; remote; dreamy; would prefer to neglect reality

10.7 adventurous; venturesome; flexible; frequent voluntary changes of residence; does not mind a stay abroad; likes to travel; unusual leisure activities; extravagant hobbies; active member of clubs etc.; often prefers extreme types of sport; in general, full of enterprise; varied interests in culture, art, theatre, literature etc.

10.8 strongly attracted to esoteric topics (mysticism, magic, Eastern philosophies); might have contacts to a "Guru" or esoteric sects; loves the extraordinary

10.9 likes to take the initiative; enthusiasm is easily aroused; willing to accept change; has many plans and ideas; unrealistic at times

10.10 realistic, unemotional attitude towards life; no highflying aims; has a practical hand; leisure activities subordinated to family and work; any hobbies tend to be rather conventional, often manual or technical (knitting, collecting stamps, handicrafts); no sense of adventure

10.11 dissatisfied with existing conditions; strives for change; suffers from inconsistency between own ideas and reality

10.12 adapts to existing conditions; accepts facts

10.13 heavy self-doubts; lacks self-confidence; is dependent on others' help; often has no own opinion; is uncritical in assuming other people's views

10.14 has problems handling money; easily runs into debt; lives beyond his/her means

10.15 often changes his/her opinion; in general, lacks purpose and sense of direction

10.16 if female, has difficulties in identifying with own sex role

10.17 sets high ethical standards for him-/herself, but feels unable to meet them (e.g. with regard to religious matters)

10.18 no fixed moral standards; at risk of getting drawn into an antisocial or criminal environment (e.g. ebezzlement); inclination to violence

10.19 alcohol and drug abuse

10.20 conservative standard of values; conscious of tradition; perhaps cautiously reformative (e.g. within the framework of a trade union)

10.21 tendency towards radical or extreme attitudes with regard to politics, philosophy, religion etc.

10.22 no stiff moral standards; aversion to rules and regulations; ignores social conventions; however, generally no intentionally delinquent behaviour; critical of authority

10.23 high moral standards; firm principles; conscientious; considers rules important; makes a clear distinction between good and evil; orients him-/herself to public opinion and social conventions; trusts in authority

10.24 religiosity within the institutional framework of a particular Church; does not question contents of faith

10.25 reluctant to accept responsibility; tries to shift it on to others; obligations are not taken all too seriously; if difficulties arise, tends to blame others or circumstances rather than him-/herself

10.26 strong feeling of responsibility; blames him-/herself rather than others; guilt plays an important role (quick to have a bad conscience, scruples)

10.27 unorderly; unreliable; does not take things seriously; does not want to commit him-/herself

10.28 orderly; perfectionist; meticulous; reliable; conscientious; punctual; tries to complete what he/she has started

Appendix B. List of simplified items for scoring the items of the detailed list (cf. Appendix A)

Code no.:		Completely true	Mainly true	Probably true	Not true	No information
1	Childhood and early adolescence					
1.1	Temperament/character					
1.1.1	Lively, active					
1.1.2	Quiet, unobtrusive					
1.1.3	Overly well-behaved, submissive					
1.1.4	Unstable health					
1.1.5	Difficult, defiant					
1.1.6	Nervous, restless					
1.1.7	Early developer					
1.1.8	Plays pranks					
1.1.9	Honest, sincere					
1.1.10	Very imaginative					
1.1.11	Anxious, insecure					
1.1.12	Sleep disturbances etc.					
1.1.13	Petty thefts etc.					
1.1.14	Sensitive, vulnerable					
1.1.15	Dreamy, introverted					
1.2	Social contacts					
1.2.1	Sociable, leader					
1.2.2	Few close friendship					
1.2.3	Outsider, whipping-boy					
1.2.4	Aggressive, quarrelsome					
1.2.5	Prefers to play alone					
1.2.6	Shy, timid					
2	Early environment and relationship to parents					
2.1	Broken home					
2.2	Symbiotic relationship					
2.3	Tense parental relationship					
2.4	One parent predominates					
2.5	Little emotional attention					
2.6	Overprotected by parents					
2.7	Early and abrupt severing of ties					
2.8	Close family cohesion					
3	Education and vocational training					
3.1	Learns easily					
3.2	Good performance, very diligent					
3.3	Favourite subjects, talents					
3.4	Uniform performance					
3.5	Difficulties in meeting demands					
3.6	School associated with anxiety					
3.7	Lacks motivation in class					
3.8	Model pupil					
4	Profession/occupation					
4.1	Voluntary change of course					
4.2	Continuity in education/training					
4.3	Unusual occupations					
4.4	Conventional occupations					
4.5	Ambitious, strives for success					
4.6	Industrious, conscientious					
4.7	Social descent					
4.8	Easily overtaxed					
4.9	Dissatisfied with job					
4.10	Uncooperative, unpopular					
5	Housewife and mother					
5.1	Does not feel fully occupied					
5.2	Is taken up by this role					
5.3	Difficulties in handling household					
5.4	Neglects household					

Code no.:		Completely true	Mainly true	Probably true	Not true	No information
6	Marriage					
6.1	Very tense relationship					
6.2	Assumes subordinate role					
6.3	Does not want to bind him-/herself					
6.4	Marriage and family very important to him/her					
7	Sexuality					
7.1	Shy, strong inhibitions					
7.2	Sexuality is tabooed					
7.3	Frequent sexual contacts					
7.4	Feelings of inferiority					
7.5	Unconstrained attitude					
7.6	No need for sexuality					
8	Relationship to own children					
8.1	Permissive rearing methods					
8.2	Authoritarian and devotional					
8.3	Ambivalent attitude					
8.4	Unsure of own rearing capability					
9	Social contacts and patterns of interaction					
9.1	Awkward in social relationships					
9.2	Very suspicious					
9.3	Very submissive					
9.4	Aggressive, quarrelsome					
9.5	Self-satisfied					
9.6	Large circle of acquaintances					
9.7	Affectionless and aloof					
9.8	Sociable					
9.9	Small circle of acquaintances					
9.10	Very easily offended					
9.11	Egocentric, dominating					
9.12	Strives for harmony					
9.13	Secludes him-/herself					
10	Attitude to life; values, identity					
10.1	Pleasure-seeking, generous					
10.2	Economical, modest					
10.3	Leaves initiative to others					
10.4	Strives for security, cautious					
10.5	Lacks perseverance and patience					
10.6	Has romantic notions					
10.7	Adventurous, venturesome					
10.8	Loves the extraordinary					
10.9	Likes to take the initiative					
10.10	Unemotional attitude to life					
10.11	Dissatisfied with reality					
10.12	Adapts to existing conditions					
10.13	Heavy self-doubt					
10.14	Easily runs into debt					
10.15	Lacks purpose					
10.16	Sexual role problems					
10.17	High ethical standards					
10.18	No moral principles					
10.19	Alcohol and drug abuse					
10.20	Conservative values					
10.21	Tendency towards radical views					
10.22	Ignores social conventions					
10.23	Firm moral principles					
10.24	Religious within an institutional framework					
10.25	Reluctant to accept responsibility					
10.26	Guilt problems					
10.27	Unorderly, unreliable					
10.28	Orderly, perfectionist					

Appendix C. Key for computing type-scores (as raw scores that have to be expressed as percentages of each score's theoretical maximum)

	m/h-g-l t				mel t				a-i/u-d t				n-t t			
Item	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1.1.1.	6	4	2	0	0	0	0	3	0	0	0	3	3	2	1	0
1.1.2.	0	0	0	3	6	4	2	0	4	3	1	0	0	0	0	3
1.1.3.	0	0	0	3	3	2	1	0	6	4	2	0	0	0	0	3
1.1.4.	0	0	0	3	0	0	0	0	6	4	2	0	0	0	0	1
1.1.5.	0	0	0	0	0	0	0	3	0	0	0	2	6	4	2	0
1.1.6.	1	1	0	0	0	0	0	3	0	0	0	0	6	4	2	0
1.1.7.	3	2	1	0	0	0	0	1	0	0	0	3	0	0	0	1
1.1.8.	4	3	1	0	0	0	0	3	0	0	0	3	3	2	1	0
1.1.9.	0	0	0	0	6	4	2	0	1	1	0	0	0	0	0	3
1.1.10.	3	2	1	0	0	0	0	3	0	0	0	0	0	0	0	1
1.1.11.	0	0	0	3	0	0	0	0	6	4	2	0	0	0	0	3
1.1.12.	0	0	0	3	0	0	0	0	4	3	1	0	0	0	0	0
1.1.13.	0	0	0	1	0	0	0	3	0	0	0	2	6	4	2	0
1.1.14.	0	0	0	0	0	0	0	1	4	3	1	0	0	0	0	3
1.1.15.	0	0	0	1	0	0	0	1	3	2	1	0	0	0	0	3
1.2.1.	6	4	2	0	0	0	0	1	0	0	0	3	0	0	0	1
1.2.2.	0	0	0	0	6	4	2	0	0	0	0	0	0	0	0	3
1.2.3.	0	0	0	3	0	0	0	3	4	3	1	0	0	0	0	0
1.2.4.	0	0	0	1	0	0	0	3	0	0	0	3	6	4	2	0
1.2.5.	0	0	0	2	0	0	0	0	3	2	1	0	0	0	0	1
1.2.6.	0	0	0	3	3	2	1	0	6	4	2	0	0	0	0	3
2.1.	0	0	0	1	0	0	0	1	3	2	1	0	6	4	2	0
2.2.	0	0	0	1	3	2	1	0	6	4	2	0	3	2	1	0
2.3.	0	0	0	0	0	0	0	1	3	2	1	0	6	4	2	0
2.4.	0	0	0	0	3	2	1	0	3	2	1	0	0	0	0	0
2.5.	0	0	0	1	0	0	0	1	1	1	0	0	6	4	2	0
2.6.	1	1	0	0	3	2	1	0	3	2	1	0	0	0	0	2
2.7.	3	2	1	0	0	0	0	3	0	0	0	2	6	4	2	0
2.8.	1	1	0	0	6	4	2	0	1	1	0	0	0	0	0	3
3.1.	4	3	1	0	0	0	0	1	0	0	0	1	0	0	0	1
3.2.	0	0	0	1	6	4	2	0	0	0	0	0	0	0	0	3
3.3.	3	2	1	0	0	0	0	1	0	0	0	0	0	0	0	3
3.4.	1	1	0	0	6	4	2	0	0	0	0	0	0	0	0	1
3.5.	0	0	0	2	0	0	0	0	4	3	1	0	3	2	1	0
3.6.	0	0	0	3	0	0	0	0	4	3	1	0	0	0	0	1
3.7.	0	0	0	3	0	0	0	3	0	0	0	1	6	4	2	0
3.8.	1	1	0	0	3	2	1	0	1	1	0	0	0	0	0	3
4.1.	4	3	1	0	0	0	0	3	0	0	0	1	3	2	1	0
4.2.	0	0	0	1	6	4	2	0	0	0	0	0	0	0	0	3
4.3.	4	3	1	0	0	0	0	1	0	0	0	0	0	0	0	0
4.4.	0	0	0	0	6	4	2	0	1	1	0	0	0	0	0	1
4.5.	3	2	1	0	0	0	0	1	0	0	0	3	0	0	0	0
4.6.	0	0	0	1	6	4	2	0	0	0	0	0	0	0	0	3
4.7.	0	0	0	1	0	0	0	3	1	1	0	0	6	4	2	0
4.8.	0	0	0	3	0	0	0	1	6	4	2	0	0	0	0	0
4.9.	0	0	0	0	0	0	0	1	0	0	0	0	6	4	2	0
4.10.	0	0	0	0	0	0	0	3	0	0	0	1	6	4	2	0

	m/h-g-l t				mel t				a-i/u-d t				n-t t			
Item	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
5.1.	4	3	1	0	0	0	0	3	0	0	0	1	0	0	0	0
5.2.	1	1	0	0	6	4	2	0	0	0	0	1	0	0	0	3
5.3.	0	0	0	2	0	0	0	1	4	3	1	0	3	2	1	0
5.4.	0	0	0	0	0	0	0	3	0	0	0	0	6	4	2	0
6.1.	0	0	0	0	0	0	0	3	1	1	0	0	6	4	2	0
6.2.	0	0	0	2	0	0	0	0	4	3	1	0	0	0	0	3
6.3.	3	2	1	0	0	0	0	3	0	0	0	0	3	2	1	0
6.4.	1	1	0	0	6	4	2	0	1	1	0	0	0	0	0	1
7.1.	0	0	0	3	0	0	0	0	6	4	2	0	0	0	0	1
7.2.	0	0	0	2	0	0	0	0	6	4	2	0	0	0	0	1
7.3.	3	2	1	0	0	0	0	3	0	0	0	2	6	4	2	0
7.4.	0	0	0	3	0	0	0	0	4	3	1	0	0	0	0	1
7.5.	6	4	2	0	0	0	0	1	0	0	0	3	3	2	1	0
7.6.	0	0	0	1	6	4	2	0	0	0	0	0	0	0	0	1
8.1.	4	3	1	0	0	0	0	3	0	0	0	0	3	2	1	0
8.2.	0	0	0	2	6	4	2	0	0	0	0	1	0	0	0	3
8.3.	0	0	0	0	0	0	0	3	1	1	0	0	6	4	2	0
8.4.	0	0	0	2	0	0	0	0	4	3	1	0	0	0	0	0
9.1.	0	0	0	3	0	0	0	0	6	4	2	0	0	0	0	1
9.2.	0	0	0	2	0	0	0	1	1	1	0	0	6	4	2	0
9.3.	0	0	0	3	0	0	0	0	4	3	1	0	0	0	0	3
9.4.	0	0	0	0	0	0	0	3	0	0	0	3	6	4	2	1
9.5.	0	0	0	3	0	0	0	1	3	2	1	0	0	0	0	3
9.6.	6	4	2	0	0	0	0	1	0	0	0	2	0	0	0	0
9.7.	0	0	0	3	0	0	0	3	1	1	0	0	3	2	1	0
9.8.	6	4	2	0	0	0	0	1	0	0	0	2	0	0	0	1
9.9.	0	0	0	2	6	4	2	0	3	2	1	0	0	0	0	1
9.10.	0	0	0	2	0	0	0	0	3	2	1	0	3	2	1	0
9.11.	3	2	1	0	0	0	0	1	0	0	0	3	6	4	2	0
9.12.	1	1	0	0	6	4	2	0	3	2	1	0	0	0	0	3
9.13.	0	0	0	3	0	0	0	1	3	2	1	0	0	0	0	1

Item	m/h-g-l t				mel t				a-i/u-d t				n-t t			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
10.1.	6	4	2	0	0	0	0	3	0	0	0	3	3	2	1	0
10.2.	0	0	0	3	6	4	2	0	0	0	0	0	0	0	0	3
10.3.	0	0	0	2	3	2	1	0	6	4	2	0	0	0	0	1
10.4.	0	0	0	2	6	4	2	0	3	2	1	0	0	0	0	3
10.5.	3	2	1	0	0	0	0	3	1	1	0	0	6	4	2	0
10.6.	3	2	1	0	0	0	0	3	3	2	1	0	0	0	0	1
10.7.	4	3	1	0	0	0	0	3	0	0	0	2	3	2	1	0
10.8.	3	2	1	0	0	0	0	3	3	2	1	0	0	0	0	1
10.9.	4	3	1	0	0	0	0	1	0	0	0	3	0	0	0	1
10.10.	0	0	0	2	6	4	2	0	0	0	0	1	0	0	0	1
10.11.	0	0	0	0	0	0	0	1	0	0	0	0	3	2	1	0
10.12.	0	0	0	0	6	4	2	0	3	2	1	0	0	0	0	3
10.13.	0	0	0	3	0	0	0	1	4	3	1	0	3	2	1	0
10.14.	4	3	1	0	0	0	0	3	0	0	0	0	6	4	2	0
10.15.	0	0	0	2	0	0	0	3	1	1	0	0	6	4	2	0
10.16.	0	0	0	2	0	0	0	3	0	0	0	0	6	4	2	0
10.17.	0	0	0	0	3	2	1	0	3	2	1	0	0	0	0	3
10.18.	0	0	0	0	0	0	0	3	0	0	0	2	6	4	2	0
10.19.	1	1	0	0	0	0	0	3	0	0	0	0	6	4	2	0
10.20.	0	0	0	1	6	4	2	0	3	2	1	0	0	0	0	1
10.21.	3	2	1	0	0	0	0	3	1	1	0	0	3	2	1	0
10.22.	4	3	1	0	0	0	0	3	0	0	0	0	6	4	2	0
10.23.	0	0	0	1	6	4	2	0	0	0	0	0	0	0	0	3
10.24.	1	1	0	0	6	4	2	0	1	1	0	0	0	0	0	3
10.25.	1	1	0	0	0	0	0	3	4	3	1	0	6	4	2	0
10.26.	0	0	0	3	6	4	2	0	3	2	1	0	0	0	0	3
10.27.	4	3	1	0	0	0	0	3	0	0	0	0	6	4	2	0
10.28.	0	0	0	3	6	4	2	0	0	0	0	1	0	0	0	3
Σ	127	92	35	106	168	112	56	132	181	130	51	58	216	144	72	111
106	Σ			360	Σ			468	Σ			420	Σ			543
	score (max):			233	score (max):			300	score (max):			239	score (max):			327
	zero items:			17	zero items:			14	zero items:			22	zero items:			9

I = completely true; II = mainly true; III = probably true; IV = not true

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