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The linguistic fingerprints of helping alliances[1]

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The beginnings of the Ulm Psychoanalytic Process Research Programm in the early seventies began with a serendipitious discovery. The senior author of this report (HK) was asked by the chair (Prof. Thomä) to develop the details of the program; he started digsting what was available then in terms of reading materials: there were the first readers on psychotherapy research by Mowrer (1953) and by Gottschalk & Auerbach (1966); the first edition of the Bergin & Garfield Handbook (1971) had not yet arrived in Germany then.

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We embarked on our systematic study having come across Strupp´s multidimensional system (1957). We collected verbatim transcripts of 5 initial interviews from six psychotherapists and one social worker (N = 35 interviews) and analyzed the first 20 minutes using the revised Strupp system (1973, p.559).

Interviewer	explorations	interpretations	yes (%)	but (%)	TTR
C (I)	62,2	8,3	13,4	1,2	1,2 + 0,2
F (II)	48,4	7,3	7,6	2,1	1,3 +0,2
D (II)	44,1	7,2	5,4	1,8	1,4 + 0,6
A (III)	49,2	17,5	15,8	1,6	1,7 +1,8
E (III)	26,1	25,6	5,7	**7,9**	2,1 + 1,7
B (II)	32,6	30,4	3,3	1,2	1,5 + 0,7

Correlating these findings the the level of clinical experience (less than 1 year, 1-3 years, > than 3 years) it became clear that with growing clinical experience the

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interviewers become more courageous in using the interpetative mode in the early 20 minutes of the initial interviews.
Scanning through the material he discovered that one of the six interviewers had a very peculiar way of starting his interventions. In more than 7,9 percent he began with the word "but"; the others behaved more appropriate, more decent.
The was the first idea of a linguistic fingerprint!

Research on vocabulary

Operational measures for the therapist´s vocabulary have to distinguish between formal and substantial aspects. The term "vocabulary" refers to the number of different words (types) that are used by a speaker. Measures of types are interesting, since words stand for concepts (and therapy has essentially to do with an exchange of concepts and beliefs, with assimilation of new material and accomodation of previous schemata). So the therapist´s vocabulary at the beginning of the therapy will both shape and reflect the patient´s experiential world. During the therapy its evolution might run parallel or at least partly reflect the conceptual and emotional learning processes that take place (French 1937). Patients´ variability in their vocabulary has been an early topic right at the beginnings of formal psychotherapy research (Johnson, 1944). Speech variability is calculated by dividing the number of different words (types, vocabulary size) by the total number of words (token, text size) in a given text This ratio between types and token, the type-token-ratio, has been usually looked at as an indicator of the diversity of a text (Jaffe 1958). However this measure is not independent from text size. Herdan (1960) therefore proposed the logarithmic type-token ratio which was found to be constant for text samples of various length. According to Holsti (1969) "the hypothesis that speech variability increases with successful therapy has generally been supported" (p.75). While in psychotherapy research the type-token ratio has not been used that often within the last decades, there has been some activity in literary research at the end of the eighties (Simonton, 1990). In the context of psychotherapy research a patient's increasing power of verbal versatility may be interpreted as a sign of working through and improvement and thus as an objective measure for psychotherapeutic process in both macro- and microanalytic perspectives (Spence 1969; Kächele & Mergenthaler 1984).

For therapists´ vocabularies relatively little work has been reported so far. We do not know what is the expected size of an therapist´s vocabulary ? Does it relate to his professional training, to the number of books he has read, or did Freud have an unusual vocabulary, or do we have to face that generally the analytic situation does generate a different vocabulary as the situational constraints on language are quite considerably as Laffal (1967) has pointed out ? Of all these questions we can answer very few at the time being. What we can achieve is report on some aspects of our work we have done on therapists with quite different amounts of clinical experience[2].

Part of speech distance - a formal measure of therapeutic alliance

Use of parts of speech is a grammatical measure and independant from the other formal measures as Gamma and Redundancy (see Mergenhaler & Kächele 1996). What it shares with them is the mere fact, that humans do not control these variables when talking to each other. They hardly could, even if they would like to do so. On the other hand, partners in a dialog influence each other and so we can derive diadic measures from them. Part of Speech Distance thus will give us an idea of how much patient and therapist assimilate towards each other. A good working alliance, we would expect, would be accompanied with less distance and a "collaborative" behavior on behalf of both. This means, both would change their vector of part of speech classes towards that one of his partner. In the case of the STUDENT analyzed here we got a surprising result, which was already ways to show up with Gamma and Redundancy, but now more clear. The two phases are clearly observable as here as well (figure 3). But the patient seems to be a passive one until session 20. Thereafter he starts out to react on his therapist. This is the only measure we have discussed up to now, which also yielded significant findings for the therapist (figure 4). Although the patient has constant behavior before session 20, the therapist shows a clear assimilation towards his patient. The impact of the triadic situation is a sudden draw back to values as in the very beginning of the therapy, but then a very rapid assimilation. Now, however, from both in an

[2]The empirical studies were performed with a software tool TAS provided by the ULM TEXTBANK (Mergenthaler 1985).

active way. These findings fit well into what we would expect for a well functioning helping alliance in treatment.

The private vocabulary

Apart from a general strategy of lecical choice that is influenced by the setting (Hölzer et al. 1994) we expect more specific processes of vocabulary impact within a therapeutic dyad. To identify these processes it is useful to distinguish two kinds of vocabularies:

1.The Private Vocabulary (PV), i.e., the set of types that are used by only one of the speakers, here denoted as Patient´s PV and Therapist´s PV.
2.The Intersectional Vocabulary (IV), the set of types that are used by both therapist and patient.

Since vocabulary measures have not yet been sufficently validated, up to now their interpretation has been guided only by clinical experience. Still we feel that the following hypothesis has a certain face validity:
The ability of a therapist to accomodate to the language of his or her patient, to bridge social differences and to empathize with the patient should result in a low Private Vocabulary on his part.

In a recent study using verbatim material from the Penn Psychotherapy Project (Luborsky et al. 1988) we found a significant negative correlation (-. 59**; $p < .05$) for the size of therapists´ Private Vocabulary with therapeutic gain for improved patients as opposed to no significant correlation for non-improved patients. Between the therapist's level of clinical experience and the size of his Private Vocabulary there was a negative correlation in both groups. (Hölzer et al. 1996). Our conclusion is that experienced therapists tend to not distance themselves from the lexical choices of their patients.

The characteristic vocabulary

A slightly more sophisticated way to compute the Private Vocabulary results in what we call the "Characteristic Vocabulary". Since there are many constraints

operating in the use of language in actual discourse we wanted to have a more specific hence "characteristic" sub-set of the therapist´s´s vocabulary, that part he is actively re-installing within the dialogues not merely following the patient´s lead. Here the decision as to whether a certain type belongs to the "Characteristic Vocabulary" is based on frequency of occurence. A word has to occur in the text of one speaker significantly more often compared to the text of the other speaker to be incorporated in this "Characteristic Vocabulary". Depending on the chosen level of significance, the magnitude of the "Characteristic Vocabulary" may differ considerably. The characteristic vocabulary does not include words used by just one speaker; these would belong to the realm of the Private Vocabulary.

To appreciate the results of this approach a few clinical remarks on the patient help:

Amalie X came to psychoanalysis because her low self-esteem had contributed to a neurotic depression in the last few years. Her entire life history since puberty and her social role as woman had suffered from the severe strain resulting from her hirsutism. Although it had been possible for her to hide her stigma - the virile growth of hair all over her body - from others, the cosmetic aids she had used had not raised her self-esteem or eliminated her extreme social insecurity. Her feeling of being stigmatized and her neurotic symptoms, which had already been manifest before puberty, strengthened each other in a vicious circle; scruples from compulsion neurosis and different symptoms of anxiety neurosis impeded her personal relationships and, most importantly, kept the patient from forming closer heterosexual friendships.....
Clinical experience justified the following assumptions. A virile stigma strengthens penis envy and reactivates oedipal conflicts. If the patient´s wish to be a man had materialized, her hermaphroditic body scheme would have become free of conflict. The question "Am I a man or a woman?" would then have been answered; her insecurity regarding her identity, which was continously reinforced by her stigma, would have been eliminated; and self image and physical reality would then have been in agreement. It was impossible for her to maintain her unconscious phantasy, however, in view of physical reality. A virile stigma does not make a man of a woman. Regressive solutions such as reaching an inner security despite her masculine stigma by identifying herself with her mother revitalized the old mother-daughter conflicts and led to a variety of defensive

processes. All of her affective and cognitive processes were marked by ambivalence, so that she had difficulty, for example, deciding between the different colors when shopping because she linked them with the qualities of masculine or feminine" (Thomä & Kächele (1992, p.79).

We identified the therapist´s characteristic vocabulary at the beginning of the analysis based on 18 sessions. From a total of 13311 token we found 1480 types. The therapist´s characteristic vocabulary comprised 36 nouns and 80 other words; this is about 10% of his vocabulary. Discussing the results of this study we reproduce the English translation and then the original German word and the frequency of occurence in brackets. This analysis used a "lemmatized" version of the text. This means that all inflected words have been reduced to their basic form, e.g.: The plural form "women/Frauen" has been replaced by the singular form "woman/Frau".

As no surprise the famous "uhm/hm" used by all therapists all over the world came out the most frequent and the most characteristic (976). There are any number of words that betray the therapist´s so called minor encoding habits like "yes/ja" (678), the dysfluency indicator once studied by George Mahl "ah/äh" (395), "also/auch" (238), "that/dass"(200), "something/etwas" (66), "this/dieser, dieses" (60), "than/als" (58), "uhuh/aha"(31), etc. Analyzing a second set of 18 sessions at the end of the analysis and checking these characteristics again, we did not find much change with these particles; they remain the linguistic fingerprints of any speaker out of conscious control. They are bad, but minor habits. However some of them make for the tedious reading of transcripts. These particles are in no way specific to the therapist´s task though they may be used for detective reasons especially when countertransference issues are the focus of an investigation (Dahl et al 1978).

Nouns as elements of style inform us about the subject of a dialogue, they tell what the two participants were conversing about and how one of them tried to shape it. Therefore the characteristic vocabulary of the therapist in terms of his nouns is very telling. In the 18 sessions from the beginning of the analysis we found the following nouns as being highly characteristic ($p < 0\ 0.01$) for the therapist:

dream (Traum 88)

woman (Frau 31)
theme (Thema 18)
thought (Gedanke 17)
question (Frage 16)
anxiety (Angst 16)
hair (Haar 13)
cousin (Cousin 9)
demand (Anspruch 8)
madonna (Madonna 8)
notary (Notar 7)
insecurity (Unsicherheit 7)
seduction (Verführung 7)
comparison (Vergleich 7)
claim (Forderung 5)
mortification (Kränkung 5)
relief (Entlastung 5)
spinster (Jungfer 5)
tampon (Tampon 5)
breakout (Ausbruch 4)
conviction (Überzeugung 4)
dog (Hund 4)
intensity (Intensität 4)
lawyer (Jurist 4)
toilet (Klo 4)
uneasiness (Beunruhigung 3)
candidate (Prüfling 3)
shyness (Scheu 3)

Ordering the nouns into semantic fields we may distinguish the following:
Technical items: dream theme thought question demand comparison claim conviction
Emotional items: anxiety breakout mortification relief insecurity intensity uneasiness shyness
Sexual/bodily items: woman seduction spinster tampon toilet madonna hair
Topical items: cousin notary dog lawyer

From this tabulation we may infer that the therapist in these first 18 sessions characteristically emphasizes in his interventions four classes of nouns: Technical nouns that are part of his task to invite the patient´s participation in the special analytic point of view; emotional nouns that are part of the therapist´s technique to intensify emotions. The sexual bodily linked nouns clearly refer to the patient´s embarrassing sexual self concept and a few topical nouns that are stimulated by the patient´s life situation as reported in the first sessions.

To deepen our understanding we subjected the use of the noun "dream" to a more thorough examination. In the beginning of an analysis it has to be conveyed to the patient that the analytic dialogue is an unusual dialogue insofar that the therapist may use highlighting as a style of interventions. As the word "dream" was a prominent characteristic part of the therapist´s vocabulary compared to the patient

we hypothesized that the therapist tried to intensify the patient curiosity about dreams as a special class of reported material. Formally the hypothesis was: we assumed that in each of the sessions when the patient reports or speaks about a dream the therapist focuses his verbal activity using the noun "dream" relatively more frequent than the patient. To avoid circularity - our hypothesis is build on the findings from the 18 sessions - we extended the database from the original 18 sessions to include 29 sessions that cover the period from the first hundred sessions. The results confirmed our hypothesis: In 25 out of 29 sessions the therapist uses the noun "dream" more often that the patient, based on the proportion of his speech activity.

The patient´s use of the word DREAM has mean of 0.13% (s = + 0.02) of all words; the therapist´s use has a mean of 0.57% (s = + 0.35)[3]. Certainly the result may be partially explained by the fact that the therapist uses shorter interventions, while the patient details his material.

Based on these findings we assume that in the opening phase of the analysis there is a systematic relationship between the patient talking about dreams and the therapist´s efforts to stay close and even sometimes to intensify the work on the reported dream. Whenever the patient uses the noun «dream» there is a variable response of the therapist which is in the majority of instances even numerically above the level of the patients use. This may mean that within a few sentences the therapist will point to the phenomena more explicit. Analyzing another sample of sessions at the end of the treatment the noun "dream" no longer was part of the characteristic vocabulary of the therapist.

Coda

Techniques of lexical investigation allow to identify the therapist´s preferred conceptual tools. The therapist´s vocabulary is a part of a complex linguistic task in a specially designed setting. Its study may help us to better understand what "therapists at work" are doing. There is no standard vocabulary, but there might be components of verbalization that are characteristic of the therapist´s therapeutic technique, for his way to help the patient to get where in the eyes of a therapist he or she should go to. Thus he transform his private theory into practice.

[3]The t-test for paired samples proves the significant difference (p 0 0.000).

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