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Letters to the Editor

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A Comment on Andreasen and Grove

While preparing our own research in the field of thought disorder in schizophrenic patients, we scrutinized the article "Thought, Language, and Communication in Schizophrenia: Diagnosis and Prognosis" by Nancy C. Andreasen and William M. Grove, which was published in the *Schizophrenia Bulletin* (12:348–359, 1986). A verification of the statistics revealed some relevant inconsistencies which we find worthwhile to report.

As we understand it, the research undertaken by Andreasen and Grove tried to demonstrate the usefulness of the Scale for the Assessment of Thought, Language, and Communication (TLC) (Andreasen 1978) in differentiating between hebephrenic, manic, schizoaffective, and paranoid patients. The claim is that the TLC establishes a consistent and specific pattern of formal thought disorder in each of those clinical diagnostic groups. These profiles are claimed to be specific enough to predict group identification reliably.

In table 2 (p. 351), frequencies of thought, language, and communication abnormalities are compared among groups. It is stated explicitly in a footnote on the same page that frequencies are compared between *patient groups only*, with normals being excluded. This makes sense, for the normals show, as can be readily expected, a relative paucity of thought disorder when compared to the patient groups. The results of the χ^2 calculation are presented, and the authors conclude:

> The patient groups differ significantly from one another on nearly all types of language abnormality that occur with any frequency. [p. 351]

Table 1. Recalculation of data presented by Andreasen & Grove (1986)

	Andreasen & Grove		Szor et al.	
	χ^2	p	χ^2	p
Poverty of speech	22.04	.01	7.7	.03
Poverty of content	47.13	.01	18.4	.01
Pressure of speech	73.94	.01	33.3	.01
Distractible speech	11.91	.02	5.2	NS
Tangentiality	16.14	.01	5.2	NS
Derailment	24.63	.01	4.4	NS
Incoherence	36.76	.01	7.4	.03
Illogicality	49.39	.01	12.3	.01
Clanging		NS		NS
Neologism		NS		NS
Word approximations	10.42	.03	5.4	NS
Circumstantiality	21.85	.01	8.3	.02
Loss of goal	12.68	.01	6.3	.05
Perseveration	21.69	.01	6.0	NS
Echolalia		NS		NS
Blocking		NS		NS
Stilted speech	13.07	.01	5.4	NS
Self-reference		NS		NS
Global Rating	**81.61**	**.01**	**4.78**	**NS**

Unfortunately, this statement is not correct (see table 1). It is true only when normals *are* included (in contradiction to the above statement).

Andreasen and Grove's (1986) χ^2 values are precisely the ones corresponding to a 5 × 2 contingency table with the two attributes being *type of individual* (normal, hebephrenic, manic, schizoaffective, paranoid) and *score* (up to 1, above 1).

When the normals are excluded (as Andreasen and Grove reported doing), and a 4 × 2 contingency table is built to test for differences in score value between the four patient groups, significance is drastically reduced (see our calculation in table 1).

There are very few TLC abnormalities on which the four patient groups show significant differences, and the global rating differences are not significant. In our view, this mistake puts in doubt the conclusions of the article.

References

Andreasen, N.C. *The Scale for the Assessment of Thought, Language, and Communication (TLC).* Iowa City: The University of Iowa, 1978.

Henry Szor, M.D.
Sara Meilijson, M.Sc.
Shalvatta Psychiatric Hospital
Hod Hasharon, Israel

Isaac Meilijson, Ph.D.
Department of Statistics
Tel Aviv University
Tel Aviv, Israel

The Authors Reply

We would like to thank Drs. Szor and Meilijson and Ms. Meilijson for pointing out an inconsistency between the footnote on table 2 and the statistics reported therein (Andreasen and Grove 1986). The authors are indeed correct that the χ^2 values given in the table pertain to comparisons with the group of normals included, rather than excluded as the footnote indicates. (For what it is worth, this represents a copy editing error and not a computational one. This mistake eluded both authors and an extraordinarily meticulous secretary!)

Where the authors of the letter go astray is in their assumption about the goals of the study. The goals of the study were numerous, but they did not include the one attributed to us. We did not intend to use the Scale for the Assessment of Thought, Language, and Communication (TLC) to classify patients as finely as the commentators indicate. We planned to compare the schizoaffective, paranoid, hebephrenic, and manic patients on TLC ratings and on other measures as well, including psycholinguistic tasks involving sentence comprehension (syntax and semantics) and discourse cohesion. These results have been reported elsewhere. In the *Bulletin* article, we simply intended to demonstrate a replication of previous findings about the diagnostic specificity of TLC abnormalities at the level of major diagnostic groupings: mania versus schizophrenia. This is the sort of analysis that was presented in the original *Archives of General Psychiatry* articles (Andreasen 1979*a*, 1979*b*) reporting on the TLC, and we wish to document that the discriminant function we used in that study was very similar to the optimal discriminant function estimated in this study for distinguishing manic patients from schizophrenic patients. The reader can easily satisfy himself that the *Bulletin* article does not contain any reference to classifying patients as to, for example, hebephrenic versus paranoid on the basis of TLC ratings. Since we did not intend to use the TLC in this way, we were neither particularly surprised nor chagrined to discover that it could not be so used with high confidence. In contrast, patients can be sorted into mania versus schizophrenia based on their TLC ratings with reasonable accuracy. Table 2 demonstrates two different points. It shows that the various patient groups do differ on high-frequency TLC abnormalities. The table also replicates the original TLC study finding that such abnormalities as derailments, which have been hitherto supposed to be specific to schizophrenia, are seen as commonly in mania.

We do not think that our copy editing error, while most unfortunate, seriously challenges the validity of the conclusions we, in fact, drew from the study, namely that previous work using the TLC to classify patients into manic versus schizophrenic groups using discriminant analysis was rather closely replicated in this second,

independent sample. We hope that this response clarifies the relationship of table 2 to our conclusion.

References

Andreasen, N.C. Thought, language, and communication disorders: I. Clinical assessment, definition of terms, and evaluation of their reliability. *Archives of General Psychiatry*, 36:1315–1321, 1979a.

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Nancy C. Andreasen, M.D., Ph.D.
William M. Grove, Ph.D.
Department of Psychiatry
University of Iowa
Iowa City, IA 52242

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