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TWENTY-FIVE YEARS AGO

Jack Katz

It would have been easy to miss the short article on page 27 of the London Times (9-17-85) titled "SSW To Be 25 Next Month". I should have remembered the 25th anniversary of the SSW because it was born just 2 months after my son Mark. We celebrated Mark's 25th birthday in June, so The Times' story should not have surprised me.

As a mater of fact, the relationship between Mark and the SSW is not a trivial one. Following surgery, Mark, as a tiny infant, had to be fed every 2 hours thru the day and night. That day I had thought of a spondaic word test that could be used to evaluate CNS function. It seemed like a staggered presentation would have excellent properties. Between the midnight and 2 am feedings I thought up a majority of the spondaic word combinations. If not for the feeding schedule I might have forgotten the idea or never have dreamed up such popular SSW items as "burp cloth, your turn".

Few of you care how I was able to breast feed Mark back to good health, because who cares about ancient history. And yet, if we can recall the past clearly we have some assurance that we are not yet senile, or is it the other way around?

Mark and the SSW developed in lock-step for a while. They listened for a long time before beginning to talk and reached the age of reason by 4 yrs. Mark has now finished law school, while the SSW has no degrees for its wall. On the other hand, the SSW has a clear goal in life!

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DEAR ACKIE

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Like most Americans, I read the last issue of SSW Reports with interest. Two papers suggested response bias measures might not be highly reliable. If true, could RB be valid?

Psych 0599 Student

DEAR PSYCH 0:

You learned your lesson well. Its hard to see how a sign could be valid without being reliable. Keep in mind that validity is validity and reliability is reliability. RB locations were based on numerous cases with well localized lesions and the measures have been used effectively for many years. In recent work by Katz, McCarthy, Jacobs and Wilson, RB was cross validated based on CT scan confirmation.

One explanation is that the first test is generally valid, but that in certain cases the pt. is able to develop compensatory strategies which influence later tests. In such a case it might provide information about the person's "stimulability". One RB could be substituted for another.

[Continued on page 18]

A NEW LOOK AT OLD DATA: AR vs NAR and DECODING

Jack Katz

Came across some old data I was playing around with in 1979. It is quite interesting. Of the 30 cases with brain lesions, 12 were classified as AR (4 R-hem, 8 L), and 18 NAR (7 R-hem, 11 L). Tho the sample is not large, the data look rather impressive. Six of the 12 ARs had Ear H/L (posterior response) and none had L/H. The Order Effects were equally divided with 3 anterior and 3 posterior.

The NAR cases were consistent. Nine of the 18 had anterior (Ord H/L / Ear L/H) bias and none had posterior bias. These data would suggest that if Heschl's gyrus is spared, there may be a much lower likelihood of posterior bias. On the other hand, AR cases often have the posterior Ear H/L but not Ear L/H.

Along the same lines, 21 unilateral cochlear cases were analyzed in the same way comparing those with better than 60% WDS with those poorer than 60%. Only 1 out of 14 with better discrimination had a posterior sign, while 5 of the 7 with poorer WDS had posterior Ear/Order Effects. This did not seem to hold up in retrocochlear cases.

If one could interpret all of this, a plausible explanation would be that posterior Ear and Order Effects are associated with the decoding that takes place in and around the AR center. [Probably more likely in L-hem cases, but this sample was too small to be very confident of this.] This indication is particularly stable in the Ear H/L, thus concommitant anterior dysfunction is more likely to show up in the Order Effect. NAR cases, largely anterior ones in this sample, showed Ear L/H and Order H/L with about equal frequency. These anterior biases in the absence of posterior signs, would tend to support the significant sparing of the decoding system.

[How about those who did not show a posterior sign but were diagnosed as AR, and had a Mo score to support such a diagnosis? Perhaps the decoding system is not so completely involved or the anterior bias has off set the posterior.] Perhaps it is fair to say that the presence of posterior bias suggests decoding difficulty, while its absence does not indicate normal auditory decoding ability.

This conclusion would logically predict the unilateral cochlear data. Those with better WDSs provide slightly degraded speech to the AR centers. This is not sufficient to disrupt the normal brain. However, very poor WDS indicates great peripheral distortion which causes the decoding system a significant challange and thus the increased likelihood of the posterior signs (Ear/Ord).

I am not sure how to interpret the unilateral retrocochlear data. Their WDSs were very poor, 0-68%. Nevertheless, there were 5 indications in 14 Ss of <u>anterior</u> bias (and only 1 with posterior). Perhaps these cases had such poor clarity that they inhibited the passage of the signal thru the damaged pathway and put major emphasis on what came thru the good channel. This could include the NC word from the bad side in many VIII N and brainstem cases.

Do any of you have data to support or refute this notion?

TEST-RETEST OF LD CHILDREN: 1. ANTERIOR ORDER EFFECT

Jack Katz

Abstract- Learning seems to take place while a person takes the SSW test. Response bias (RB) often changes or disappears. The learning /compensation appears predictable, however, the RB which has proven so valuable in diagnosis and in understanding CAP deficits, might not be salvageable on retest. The close relationship between the initial A-SSW score and the C-SSW retest may suggest that the processing disorder associated with the RB tends to disappear.

Fifty children who were diagnosed as LD were seen as part of a drug study. Since there was no difference between the control and experimental subjects (Ss) on the SSW at retest, it seemed permissible to use the data for all Ss who were retested. [Same Ss as Katz and Schultz, 1985]

Subjects- A factor in the reduced predictability of RB may be the wide range of patterns on the SSW. For this reason the data were divided into RB groups. The anterior Order Effect was chosen for careful analysis because it is a common sign among those with CAP as well as NAR problems and that the group was small enough to carry out a variety of analyses that would serve as a model for studying the other Ss.

Seven children had the anterior OE high/low, (6 boys, 1 girl). They ranged in age from 7-10 yrs. Children who had Type A patterns and OE H/L were excluded because the Type A often produced Ear/Ord Effects as an artefact.

Background- It should be noted that the value or validity of RB is not in question (at least as far as I'm concerned). I have seen its importance and application in 1000s of cases. For example, it tells whether an auditory problem is primarily one of memory or decoding. Lucker (1980, 1981) as well as Winkelaar & Lewis (1977), have provided further support and knowledge about RB.

While the SSW score is highly reliable on all studies to date, RB does not hold up as well. Thus, if the initial test provided useful information, why is there a tendency for RB to change on retest? Since the problem could not go away between test and immediate retest (Beck, Mueller & Sedge, 1985) we must assume that the problem is masked by the practice effect. The "Medical Maven" in my home tells me that one or two doses of antibiotic can mask the presence of Strep although the infection is by no means killed. It is likely that learning how to tak the SSW may hide some of the valuable signs on retest.

Conditions- Ss were retested about 2 months after the initial test by the same tester. The intervening period of time is not thought long enough to produce important maturational effects. Therefore, we would attribute improvement primarily to learning or the practice effect (Minetti & McCartney, 1979

Overall Results- It was noted that the A-SSW scores on the first test corresponded quite well, in most cases, to the C-SSW score on retest. The difference between the C SSW and A-SSW scores is the RB.

Thus, either by coincidence or because the initial test demonstrates processing difficulty for

hich many children learn to com-
ensate, the A-SSW resembles the C-
SW on the retest.

In the case of OE H/L, the
ajor errors are found on the
nitial spondee for the first test.
e would anticipate a reduction in
he difference between the halves
n the second test because of im-
rovement on the 1st spondee. This
s indeed the case. The means for
he 1st and 2nd spondees on the 1st
est were 20/11.4. This difference
ould be significant at any age. On
etest the improvement is seen most
bviously on the 1st spondee. The
atio was 10.6/7.7. The 3 error
ifference would not be significant
or any age. Only 2 of the 7 Ss had
E H/L on retest.

The least biased errors (LBE) represent the "low" half of the RB ratio. This number can then be divided into the 4 conditions (with only half the number of items). If we adjust the SSW, we double the multiplier to obtain % error. In this case we double the errors to equate the total of the 8CN with the total for the 4CN. Fig. 1 shows the relationship between the retest (R) errors and both the test (T) errors and the LBE (A) for the 4 conditions. Other than the RNC in which T was .5 closer to R than was A, the LBEs demonstrated more similar mean scores to the retest. Thus, the group data suggest that A-SSW may be a better predictor.

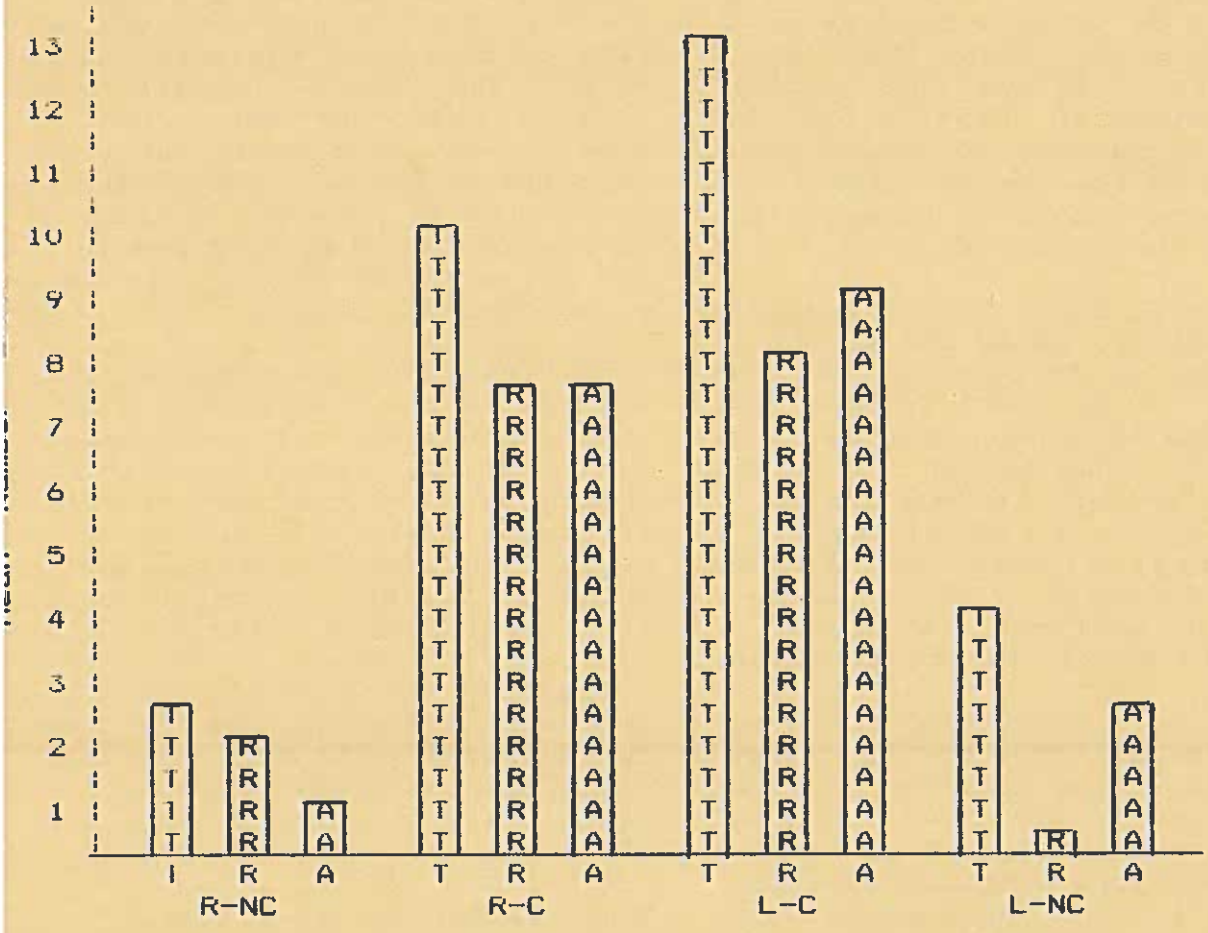

Figure 1. Number of errors on each of the 4 Conditions for the initial Test (T), the Retest (R) and the Adjusted (A) errors (on the initial test). The Adjusted (least biased) errors is based on the Order Effect High/Low in each case. The Adjusted errors had to be doubled because they were based on only half a test, unlike the Test and Retest.

Fig. 2 shows the results for a boy aged 8-10 on test and retest. It can be seen that the A-SSW is very similar to C-SSW on retest. It would be interesting to see if a 3rd test would again reduce the RB to the new A-SSW level.

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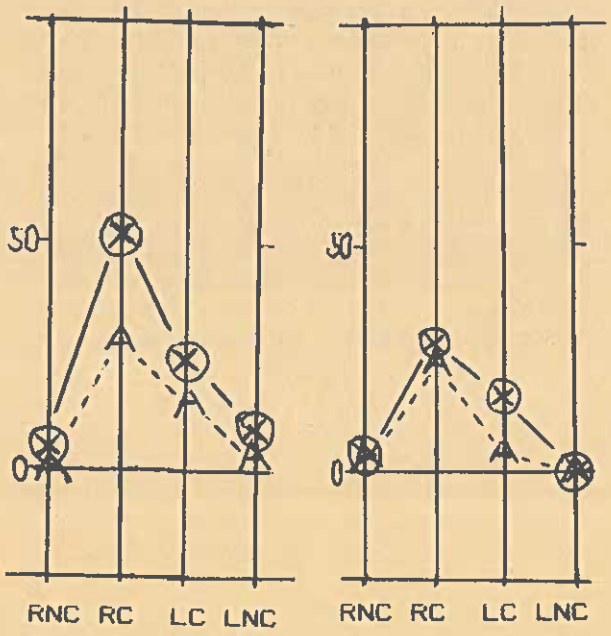

Figure 2. Illustration of the relationship between the A-SSW score (A----A) of the initial test and the C-SSW score (O----O) on the retest.

CASE STUDY

A 51 yr old woman was seen for evaluation, prior to surgery, to remove an large aneurysm from the left internal carotid artery. The aneurysm pressed upon the first portion of the anterior cerebral artery which supplies blood to the frontal and frontoparietal regions (see Fig. 1).

The patient had normal puretone thresholds, bilaterally and 92% WDS in the RE, 100% in the LE. There was a mild peak of errors in the LC condition. Total C-SSW was 14 (Mi). An Order Effect 23/5 was noted along with 25 reversals. Like most patients, the item immediately after instruction to 'say the words just as you hear them' was not reversed. However, starting on the following item she began to show a high percentage of reversals again.

The patient was retested 2 1/2 weeks later, showing considerable improvement in the C-SSW score. All conditions were normal and the total C-SSW score was -1. The surgery (plus any learning effect) appeared to produce improved dichotic performance. While there were no significant conditions, there were 25 reversals noted on retest.

The patient was seen again 1 1/2 months later for a second retest. At that time, a total score of -1 was obtained again plus 19 reversals.

This is an interesting case. It shows the predicted large number of reversals with involvement of the reversal strip. The anterior bias was also found. It is interesting to see the response bias with such a deep lesion in the brain. Test, retest and reretest revealed consistency in the reversal charicteristics.

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Figure 1. Left lateral view of brain (top) and anterior-posterior view (bottom) with locus of vascular impairment before surgery.

[DEAR ACKIE cont. from pg 13]

DEAR READERS:

What has been your experience when you have given the SSW for retest? It is important to distinguish between the stable case (as tested by Beck et al in the last issue, many years after the brain insult) and the unstable (as tested by Musiek and Sachs, 1980, over a period following a brain absess). In LD children 3 or 4 month intervals might yield some significant changes, while immediate restest provides the best conditions for learning.

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