SSW
SSW
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WHERE DO LITTLE TYPE As COME FROM? A CASE STUDY

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In some ways the Type A (or B) pattern may be a very fragile sign on the SSW. This is because the rules state that there must be one column (one Cardinal Number) that is far poorer than the rest. In adults with focal lesions, the criteria may not be difficult to achieve because they would typically have few other errors on the test. However, in young children or in adults with widespread disorders, it is quite conceivable that a Type A pattern may be "masked out" by other SSW errors. In children 10 years of age or under, a Type A pattern may be even more difficult to find than in older individuals because more extreme differences are required to exceed the norms. Thus, some related errors in another column may not permit a difference of say 5 points.

When testing a child one might wonder what exotic response bias could be hiding under the error pattern that is shown. On occassion we get a glimpse of what was actually obscured under the other errors when a person is retested. It should be remembered that when there is improvement on the SSW, response bias shows up where it wasn't before, we should not assume that a new disorder is now affecting the child. Rather this suggests that confounding errors are now gone revealing the bias that remains.

One such case was recently seen at Hunterdon Medical Center for a reevaluation. "Mike" who was seen at age 7 was seen again at age 12. On both occasions he was administered the SSW and CES. He was referred originally because of severe reading and spelling problems and was retested as part of a follow-up. Academically, "Mike" is still 3 years below grade level in reading. On the first test session his hearing was normal as were the results of the immittance battery. On the second test session, "Mike" displayed a mild (15-20dB) air-bone gap and the SSW was presented at 30dB SL.

The WDS, SSW and CES performance for the two visits are shown below:

AGE SEVEN (7)

8CN (REF)	0 6 16 3	3 17 6 4
CES	R = 10	L = 5
WDS	R = 96%	L = 88%
REVERSALS	0	

AGE TWELVE (12)

8CN (REF)	2 3 3 2	0 10 1 1
CES	R = 0	L = 0
WDS	R = 100%	L = 100%
REVERSALS	2	

The SSW-grams are shown in Figure 1. In both cases a LC peak is obvious, however on the original test no Type A pattern was found. At 7, in addition to the 17 errors in column F, he had 16 errors in column C. On both tests, all four C-SSW Conditions were abnormal for his respective ages when compared to the current C-NS 1985 norms. Although the Type A originally might have been concealed there was still an indication of a left-right hemisphere integration problem. There was a crossed SSW/CES pattern which suggests difficulty crossing from one side of the CNS to the other. That is, the SSW peak was in the left ear and CES was poorer in the right ear, as if language information could not cross to the left hemisphere and environmental sounds could not cross to the right hemisphere. While other interpretations could be made, the facts of the case would weigh heavily in this direction.

Interestingly, on the retest, the large peak of errors in column C was gone but the majority of column F errors remained. This easily met the criteria for Type A, but there was no crossed pattern because there were no errors on CES. Unlike the original test there was also the appearance of a significant Order Effect. This is of only casual interest because the significance of Ear and Order Effects are ignored in the presence of a Type A.

DISCUSSION

It is not possible to know the specific underlying auditory problems that Mike had when he was 7 years old and therefore, we must be cautious in our speculations. However, because he has a severe and tenanious reading and spelling problem, a Type A pattern and a score yeilding an Order H/L, it is quite possible that there was an actual Order L/H that was cancelling the Type A. In other words, like many young children Mike may have had some "posterior" immaturity associated with poor decoding. That characteristic generally tends to disappear before the "anterior" Order Effect, as maturation tends to be completed in the receptive regions (posteriorly) before the more expressive or higher level functions (anteriorly).

The Type A in children with learning problems, especially those with severe reading and spelling disabilities, are thought of as having some dysmaturity in bringing visual and auditory information together (presumably via the corpus callosum). This SSW pattern with a peak of errors in the left ear was noted in one-third of corpus callosum tumor cases (Katz, Aguilar-Marculis and Avellanosa, 1980). At the same time there was a tendency for these subjects to also have a peak of CES errors but in the right ear. The youngest cases (below 30 years) often had small SSW peaks and no errors on CES (probably because CES is an easier test, given four pictures from which to choose).

SUMMARY

We often wonder what the various problems are that underlie some child's SSW pattern in which there are many errors, especially when there is no response bias. The present case is a child who displayed severe reading and spelling problems. He was tested with the SSW twice, 5 years apart. Initially, he had a very sharp peak of errors in the LC Condition, but no response bias. The SSW/CES showed a crossed pattern with the SSW (i.e., CES peak in the RE; SSW peak in the LE). On retest he had a Type A-LC. The SSW/CES suggested the possibility of reduced ability in getting speech information from the "minor" right hemisphere to the dominant left as well as non-language information from the less specialized left hemisphere to the right that is thought to process tones and environmental sounds.

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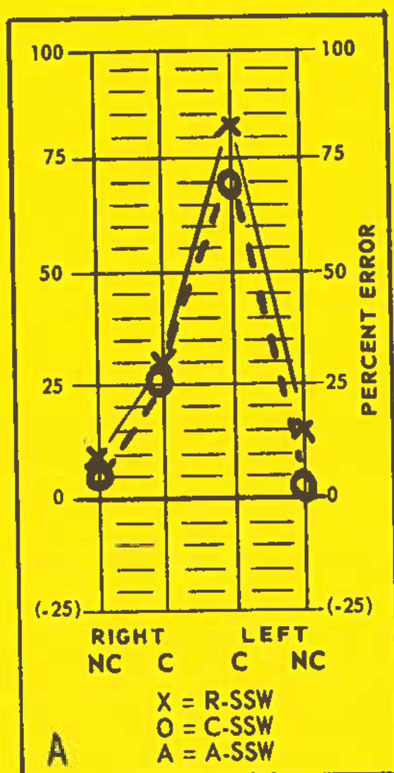

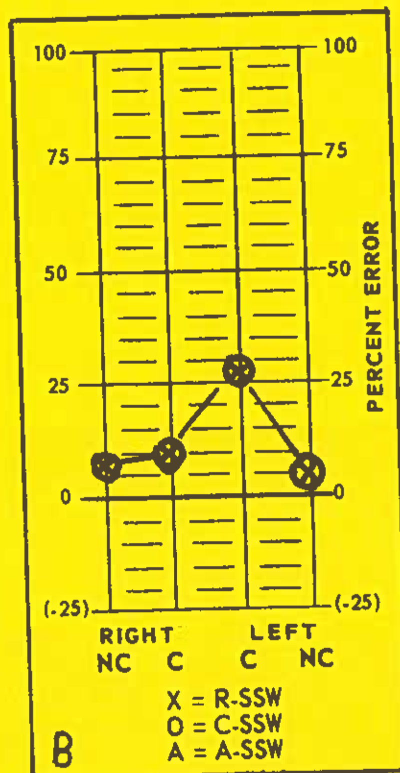

Figure 1. SSW performance for a learning disabled child who (A) was seen at seven years of age, and (B) was retested at twelve.

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USE/MISUSE OF THE SSW TEST-- THE DANSK SSO TEST VS. EC

Jack Katz

ABSTRACT - We have realized for many years that part of the effectiveness of the SSW is that it challenges both anterior (fading memory) functions and posterior (decoding) functions. It is likely that the slow deliberate manner contributes to the former and dichotic (simultaneous) presentation makes a significant demand on the latter.

We learn most when we attempt to teach. Recently, I was helping some Danish colleagues learn about the sensitive procedures on the SSW that give insight into auditory processing disorders and also to help them to improve their present SSW (the SSO test). While attempting to teach, I learned a great deal about the EC recording.

In many ways the SSO resembles the American version with one important exception. The pause between the two halves of the spondees and/or the words are perhaps a little quicker than the material in English on the EC tape.

One way to think about the Danish test is that it is more demanding of decoding skills while being less challanging of memory. All things being roughly equal (familiarity, clarity, intensity etc.), the same number words and sounds have to be processed by the auditory system in a shorter period of time than a test in which the words are delivered more slowly with longer pauses. An inefficient decoding mechanism as we see in adults with posterior lesions would be more likely to break down on the quicker-briefer test than the slower one.

While the decoding case is overwhelmed with too many words that are delivered too quickly, the person with a poor memory has a less demanding task because the words and sounds are close together. In this case, given a reasonable decoding process, the person is able to remember the words because they do not have to be kept in memory for so long.

In working with patients with lesions of the auditory reception region (AR), I have been surprised that more of them have not shown posterior bias. It is common to see an AR case with a MO or S score with anterior bias or no bias at all. After a number of years I realized that the anterior bias could off set the posterior or had actually overcome the posterior sign (e.g., Order H/L over a smaller Order L/H). Thus a posterior or decoding problem can be hidden behind a larger fading memory effect. Perhaps, the EC is sufficiently slow as to reduce the likelihood of an obvious decoding sign, but the duration of the item is sufficiently demanding that those with shorter memory traces (adults with anterior lesions) tend to demonstrate anterior signs.

Results on the SSO that were gathered by Inge Lise Rasmussen and Bent Åge Larsen help to shed light on this subject. Cases with severe speech-language disorders tended to have RE peaks on the SSO and good performance in the LE ear. They resembled the left-AR cases tested with the SSW. The data for 4 teenage children, who had such RE peaks, demonstrated 7 posterior Order and Ear effects on the SSO. A second group of Danish subjects had RE peaks as well as prominent LE errors. They had posterior signs in two cases and anterior signs in two others. With widespread dysfunction it would not be surprising if the anterior and posterior tendencies confounded one another.

My guess is that the posterior signs were found more often on the SSO than we would expect on the EC because of the greater load on the decoding system of these children. It would make sense that poor phonetic decoding Could then reveal itself in poor phonological skills ("articulation problems") and receptive language dysfunction. The posterior signs might not be so obvious on the American test because of the reduced load on the decoding system. Those of you who have data on children who have speech-language problems might check to see if the posterior signs are less obvious on the EC than was noted on the SSO. I think this calls for another version of the SSW test. I'll let you know how it turns out.

The Danes made a most interesting observation. They noted that their LD children tended to have LE peaks (much like we find) and the speech-language (presumably phonological problems and receptive language) difficulties, tend to peak in the RE (this has not been reported here). These findings are not difficult to explain. The speech-language problem cases (most all were teenagers) had tenacious difficulties, perhaps associated with auditory-visual integration (anatomically consistent with angular gyrus or corpus callosum)dysfunction. LE peaks are common with known cases having corpus callosum and angular gyrus lesions. On the other hand those with phonetic-receptive difficulties are labeled as speech-language impaired and peak in the RE as those who have impaired function of the AR and surrounding centers.

The Danish people are gentle and kind folks. They boast some of the best beers in the world. It is little wonder that item #21 is:

Two mugs
Carls borg

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USE/MISUSE OF SSW TEST: L-AR v R-AR

Jack Katz

I tested a 50 yr old, R-handed man who had a L-CVA 2 years earlier. The lesion was due to involvement of the main branch of the middle cerebral artery. The CT scan revealed damage to the left temporo-parietal region (including Heschl's gyrus).

With widespread involvement of the L-hemisphere (LH), it was surprising that the peak of errors for the LC Condition was so sharp (see Figure 1). Since the work of Max McClellan, many years before, I had assumed that L-H cases who had widespread involvement would be likely to have bilaterally depressed performance.

If we assume L-AR produces a RE peak, involvement of the corpus callosum or anterior commissure in the same individual would cause a LE peak, resulting in a bilaterally depressed score. RH lesion cases would not have a bilateral peak because both the AR and commissural disorder would affect the LE score.

I decided to go over my cases of the past several years to see how the performance of L-ARs (n=13) and R-ARs (n=10) differed. Figure 2 shows the median performance for the two groups on the SSW and CES tests.

As expected, the R-AR cases had a rather sharp peak errors in LC Condition. CES error peak was in the LE as well. The L-ARs had significant errors not only for RC but also RNC and LC. CES peaked on the same (right) side as the SSW.

L-AR cases are more likely than R-AR to have bilaterally significant results. As expected, AR cases tend to have SSW and CES peaks in the same ear. This is contrasted with splenium and elderly genu cases who have "crossed patterns" (SSW depressed in LE and CES in the RE).

The most likely possibility when finding a bilateral SSW peak is that the left/language dominant hemisphere is not sufficient for the task. This is probable whether the person is being seen for a site-of-lesion or CAP evaluation.

Finally, why did the L CVA patient I tested do so well on all but the RC Condition? I suspect that it is because he, like other very intelligent people, is able to "beat" the SSW to some extent. He was unable to figure out the RC word (omitted all of them), but seemed to figure out strategies for arriving at the other words (as suggested by his many delayed responses).

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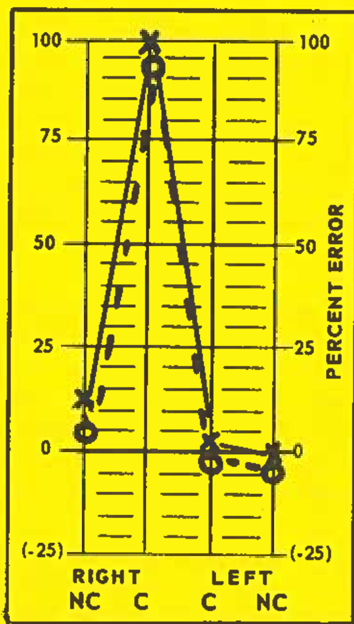
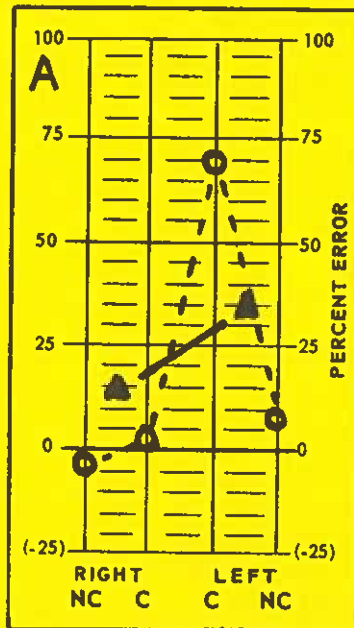


Figure 1. SSW results for a 50 year old man with a left CVA involving the auditory reception (AR) region.



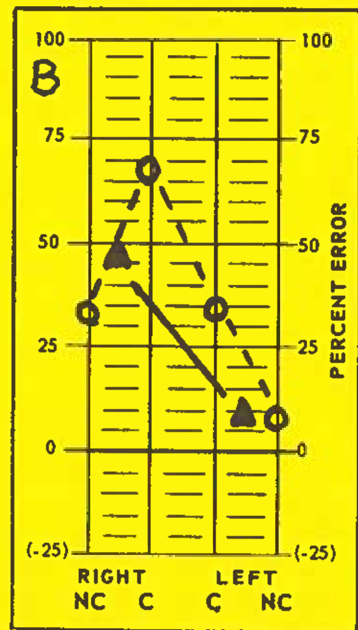


Figure 2. C-SSW and CES test results (medians) for (A) 10 R-AR cases and (B) 13 L-AR cases.

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A special thanks to Debra Jacobson who has served so long and well as business manager.