SG1I

[redacted]

Using table 4 and the .80 probability of being correct that they cite on page 11, the following can be stated.

There are 32 possible 5-bit permeations for generated outputs. All 32 can be grouped with into a 0, 1, or 2 error message box with a .94208 reliability. (Some of the permeationations fit into both 1 and 2 error boxes, and all of the 2 error entries ~~are redundant~~ match to both the (00000 and the 11011) or the (01110, and 10101) correct messages. That is, 2 error messages do not (as P&T suggest) uniquely identify a correct message, but only narrow the likely choices to 2.

Because of the 4 correct message codes they chose, several things happen. If a "correct" message is received, (eg. 00000) then it must be remembered that ~~it~~ it also could be a 3 error message of 01110 or 10101,

is a 4 error message of 11011. Since
a 0 error message ($p = .32768$) is roughly
6 times as likely as a 3 error message ($p = .0512$)
and 50 times as likely as a 4 error message (.0064)
then the 00000 choice is at least 6 times
($p \simeq .82$) more likely than each of the other choices,
but is only about 3 times ($p = .67$) [.0512 + .0512
+ .0064 = .1088] more likely than all of the
other messages. Most of the ~~or~~ 1 error messages
have even smaller odds of ~~correlating to their~~
~~specific~~ uniquely identifying a specific correct
message. For instance, the receipt of 00100 is
(as shown in Table 4) a one error message of 00000.
However, (not shown in Table 4) it also is a 2 error
message of both 01110 and 10101. Since
the odds of a two error message are $p = .2048$ and
there are two possibilities, the message 00100 gives
only ~~[illegible]~~ an ~ .5 chance of the message 00000
(being either 01110 or 10101)
being correct ($p = .4096$) relative to $p = .4096$ for (.2048 + .2048

The statistics get hairy here, and I haven't tried to do them fully, but the curve for "no error correcting" is very wrong (see inverted green curve ~~for~~ on Table 4) and I would bet that the "error correcting" curve is also erroneously high. Hence, I am suspicious of the accuracy of the "majority vote" curve.

[redacted] SG1I

00000 $P_4(00000) = .00128$ $P_c \cong .75$

01110 $P_1(01110) = .08192$ $\Sigma = .02688$

10101 $P_3(10101) = .00512$

11011 $P_2(11011) = .02048$ $\sim 3:9$

0 1 1 1 1

$P_0 = (.8)^5 = .32768$

$P_1 = (.8)^4(.2) = .08192$

$P_2 = (.8)^3(.2)^2 = .02048$

$P_3 = (.8)^2(.2)^3 = .00512$

$P_4 = (.8)^1(.2)^4 = .00128$

$P_5 = (.2)^5 = .00036$

0 1 1 0 1

$P_3 (00000) = .00512$ (12.5%)

$P_2 (01110) = .02048$ (37.5%)

$P_2 (10101) =$ (37.5%)

$P_3 (11011) =$ (12.5%)