1
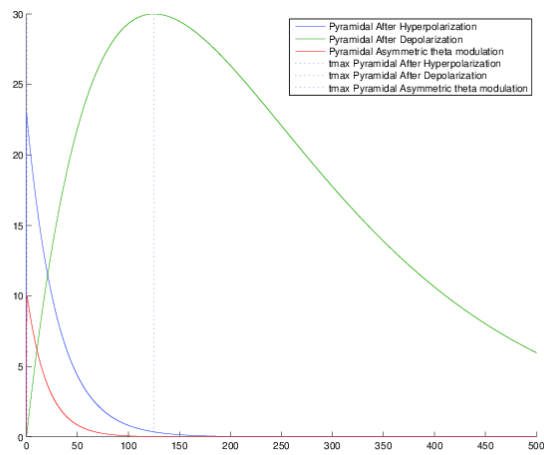
$$0 = \frac{d}{dt}Ga_{norm}\left(e^{\frac{-t}{\tau_{fall}}} - e^{\frac{-t}{\tau_{rise}}}\right)$$

$$t_{max} = \frac{\tau_{fall}\tau_{rise}\ln\left(\frac{\tau_{fall}}{\tau_{rise}}\right)}{\tau_{rise} - \tau_{fall}}$$

$$= \frac{\ln\left(\frac{\tau_{fall}}{\tau_{rise}}\right)}{\tau_{fall}^{-1} - \tau_{rise}^{-1}}$$

The incorrect equation appears to be a typo in that the natural log is taken of the whole fraction rather than of just the numerator.
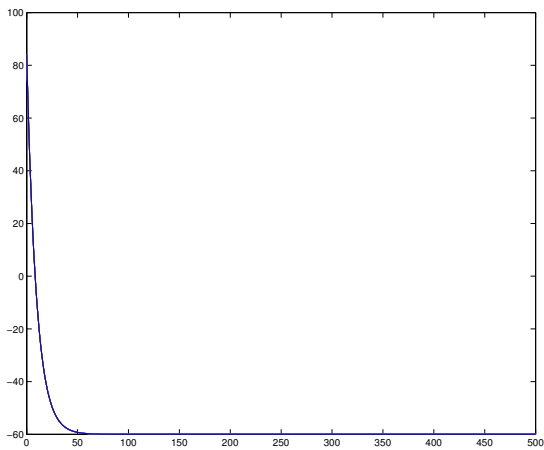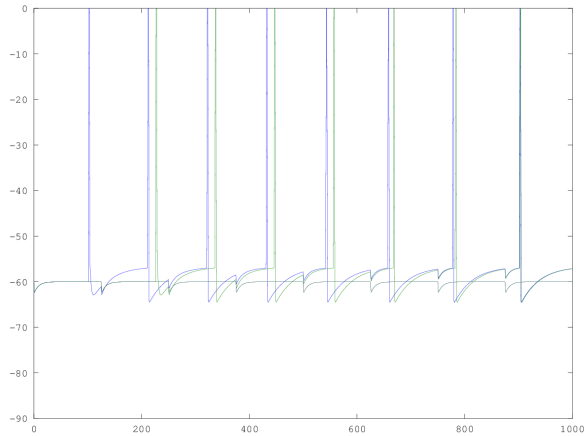
2

If $\tau_{rise} = \tau_{fall}$ the difference of their recipricals will be zero t_{max} will be undefined.
In the simulation t_{max} for AHP is approximated to be .01 where the numerical solution is .001.

var	new	old or expected
g_{max}	23.000	23.000
a_{norm}	1.000	1.000
t_{max}	0.010	0.001

3

4

5
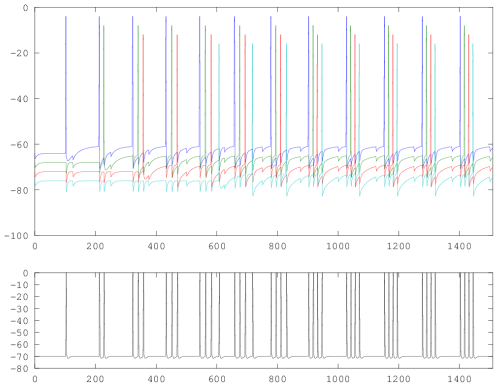
6

6.1   Cell 1

time	102	212	322	432	543	658	778	902	1027	1152	1277	1402
ISI		110	110	110	111	115	120	124	125	125	125	125
Phase	102	87	72	57	43	33	28	27	27	27	27	27

6.2   Cell 2

time	227	340	451	562	675	794	917	1041	1166	1291	1416
ISI		113	111	111	113	119	123	124	125	125	125
Phase	102	90	76	62	50	44	42	41	41	41	41

6.3   Cell 3

time	357	469	581	693	810	931	1055	1180	1305	1430
ISI		112	112	112	117	121	124	125	125	125
Phase	107	94	81	68	60	56	55	55	55	55

6.4   Cell 4

time	607	717	829	946	1069	1194	1319	1444
ISI		110	112	117	123	125	125	125
Phase	107	92	79	71	69	69	69	69