

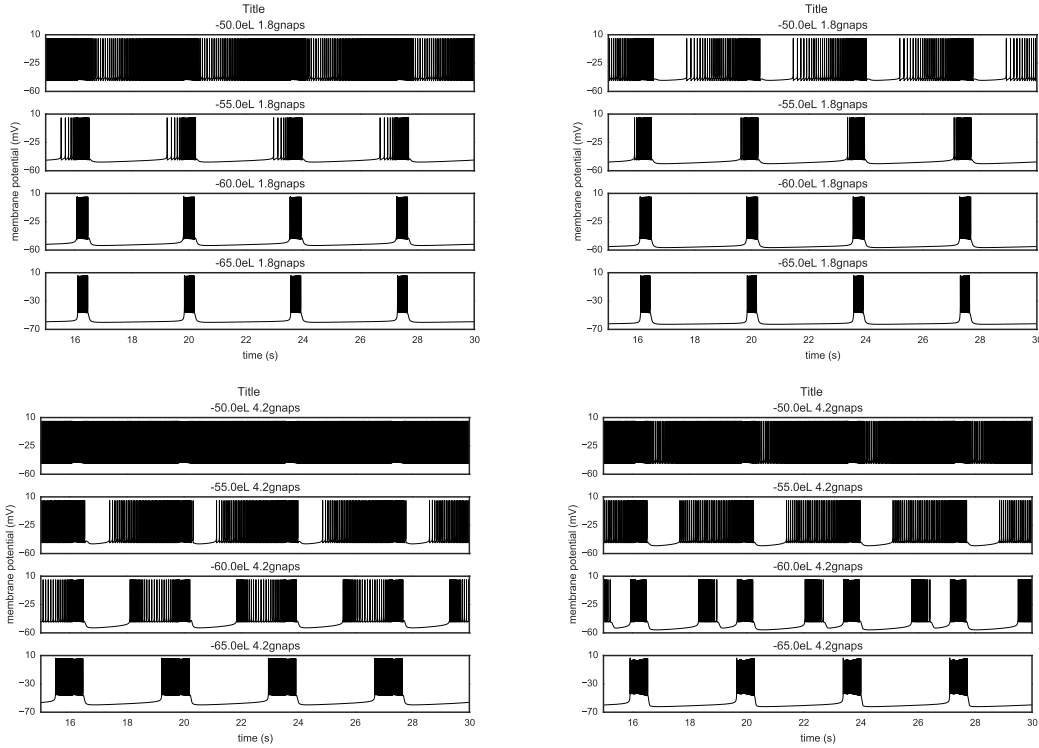
1 Results

talk about time series - what features characterize each model? -Compare models by comparing features of their time series: Burst Duration, Interburst Interval, etc.

Comparing time series Figures ?? and ??, we see that at the low end of the tested g_{NaP} range (1.8 nS)... and at the end of the range, when $g_{NaP} = 4.2$ nS, we see ...

Yan model characterized by longer burst duration and more spiking along the leading edge of each burst. Notice that the gaping present in TB model at $eL=-60$ and $g_{nap} = 4.2$ is not present in the Yan model,

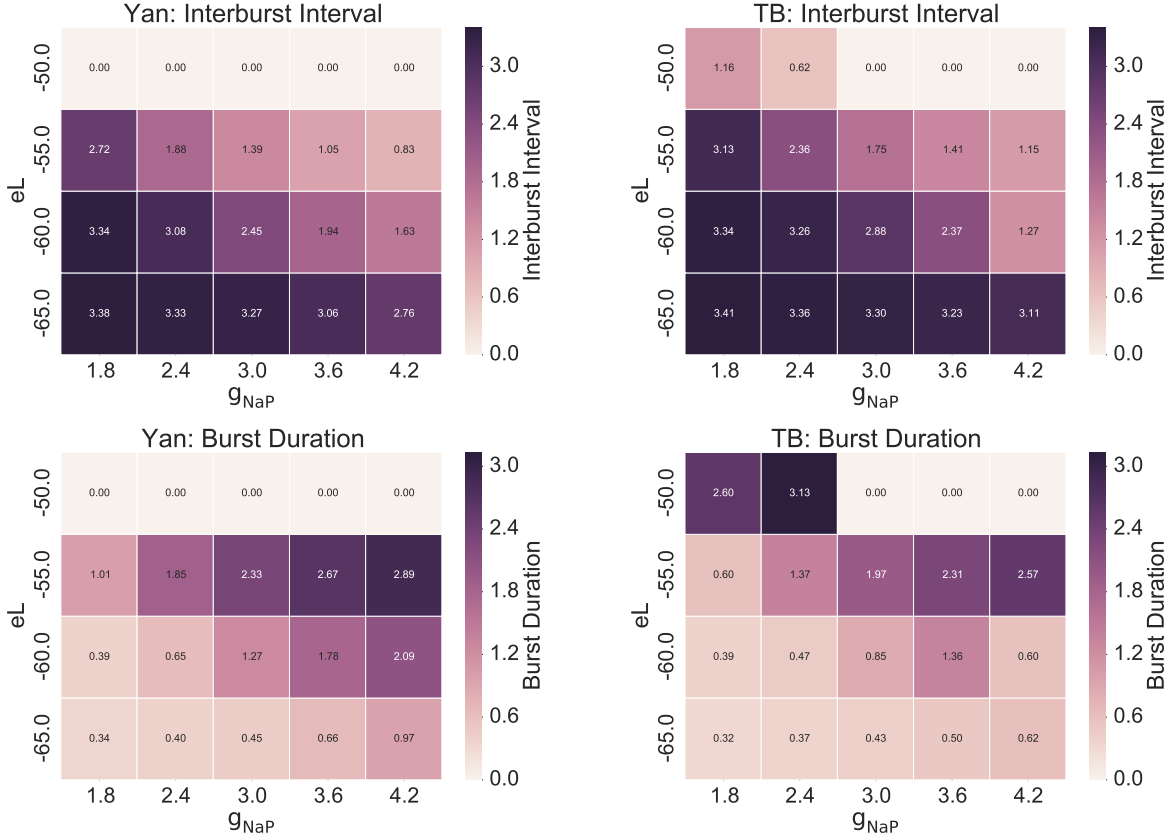
because the space between the pairs of bursts are joined by intermediate less-dense of spikes. Bursts that are separated in the TB time series are often connected by a less-dense series of spikes, which is why tonic spiking takes the place of bursting in Yan for the $eL=-50$ datasets, and why the Yan time series for $eL=-60$, $g_{NaP}=4.2$ does not show the dual-modes of bursting that TB does for the same parameter set.



1.1 Total Cycle Time, Burst Duration, Interburst Interval

-Interesting to note that while most of the measures vary considerably depending on the model and parameters used to generate the time series, Total Cycle exhibits little-to-no change reffig:hm txt. The single exception, caused by bi-modal bursting behavior ??, occurs in the TB model when $eL=-60.0$ mV and $g_{NaP}=4.2$ nS.

Average total cycle time, the time from the start of one burst to the start of another, was very uniform between models for all parameter sets that exhibited bursting (Fig [??]). The only point of significant difference was at $eL = -60g_{nap} = 4.2$ where the value for the TB model was half that of the



Yan model, due to the two modes of interburst interval present in for the TB model but not for the Yan model (Fig [??]).

Where bursting occurs in the Yan model, burst duration for Yan increases more rapidly than TB as eL increases. For $eL = -55mV$, burst duration is different at all tested g_{NaP} values. Differences in burst duration between the two models does not change significantly with change in g_{NaP} . For Yan, bursting does not occur while $eL = -50mV$, while bursting occurs at $eL = -50$, $g_{NaP} = 1.8, 2.4$.

With one exception, interburst interval and burst duration display the same inter-model pattern of significance. The exception, at $eL = -50.0$, $g_{NaP} = 2.4$ where interburst interval is 0.62 seconds for the TB model and 0 (due to an absence of bursting) for the Yan model. The pattern change in their values the patterns in their values are flipped.

This is unsurprising, since Total Cycle Time, the summation of Interburst interval and burst duration, was nearly invariant across all model-parameter combinations.

1.2 Peaks within Bursts

Yan show significantly more peaks per burst than the TB model in the upper two g_{NaP} values and the lowest eL value (-55 mV) for which they both display bursting. When low values of eL and g_{NaP} coincide there is no model-dependent difference in peaks per burst. For peaks-per-burst, Yan

The model-dependence of the

For smaller values of eL (-65, -60) with higher value of g_{NaP} (3.0, 3.6, and 4.2), TB had a significantly larger intraburst frequency than did Yan. The same occurred for small values of g_{NaP} (1.8, 2.4) at

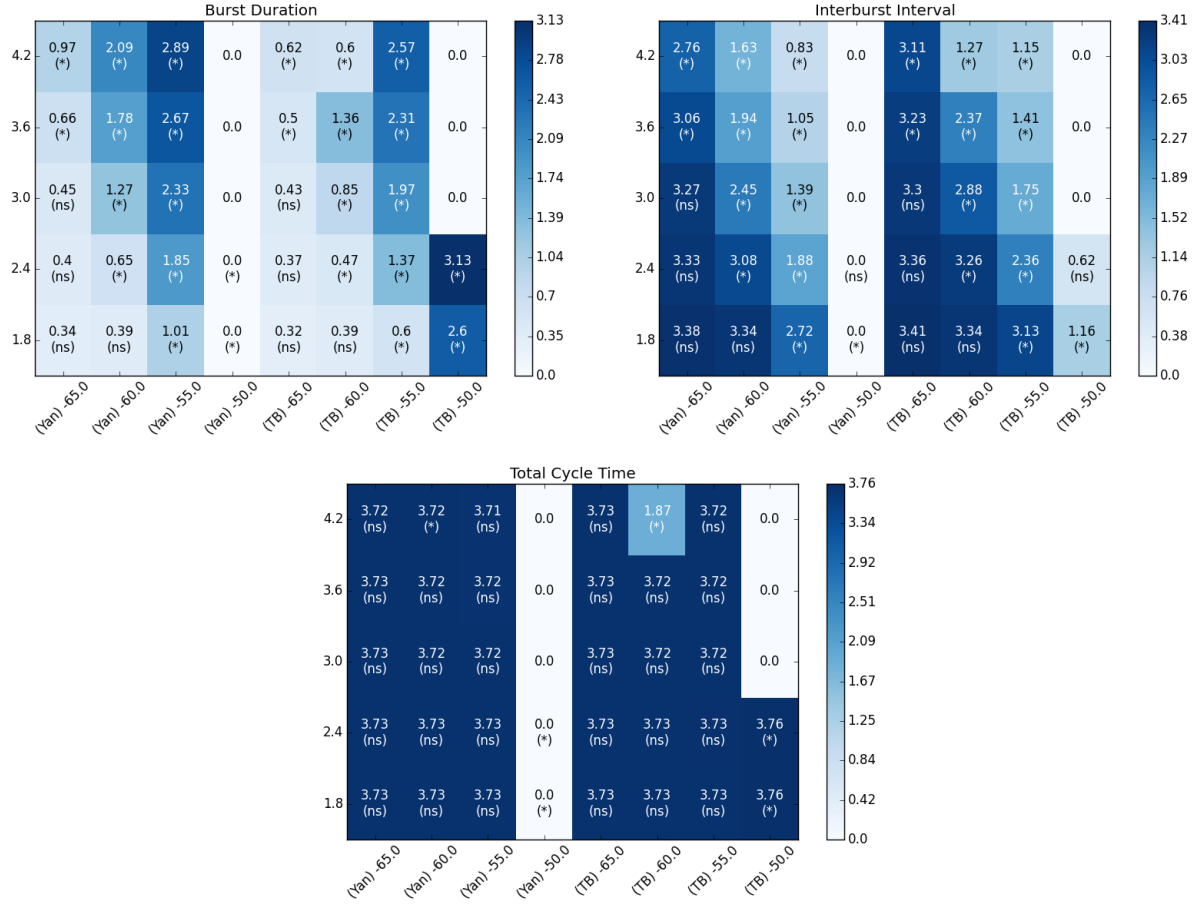


Figure 1: Heat map showing variations in total cycle time with changes in eL , g_{NaP} , and model. Zeroes indicate tonic spiking. Star (*) and (ns) symbols below each value indicates statistical significance between the corresponding cell for the other model.

higher values of eL (-55). Interestingly at $eL = -65$ mV, the difference between the TB and Yan values decrease with decreasing g_{NaP} , but at $eL = -60$ the difference increased with decreasing g_{NaP} . No significant difference occurred between the models for low values of eL at low values of g_{NaP} or at high values of eL for high values of g_{NaP} .

1.3 Peak Measures

Average peak amplitude was showed strong model-dependent significant differences (Figure 4). However, no clear and consistent pattern of increase or decrease occurred, making it difficult to tell if peak amplitude was model-dependent in a meaningful way. Interpeak interval (not pictured) was not model dependent, as no statistical significant difference occurred between same-parameters, different-model time series.

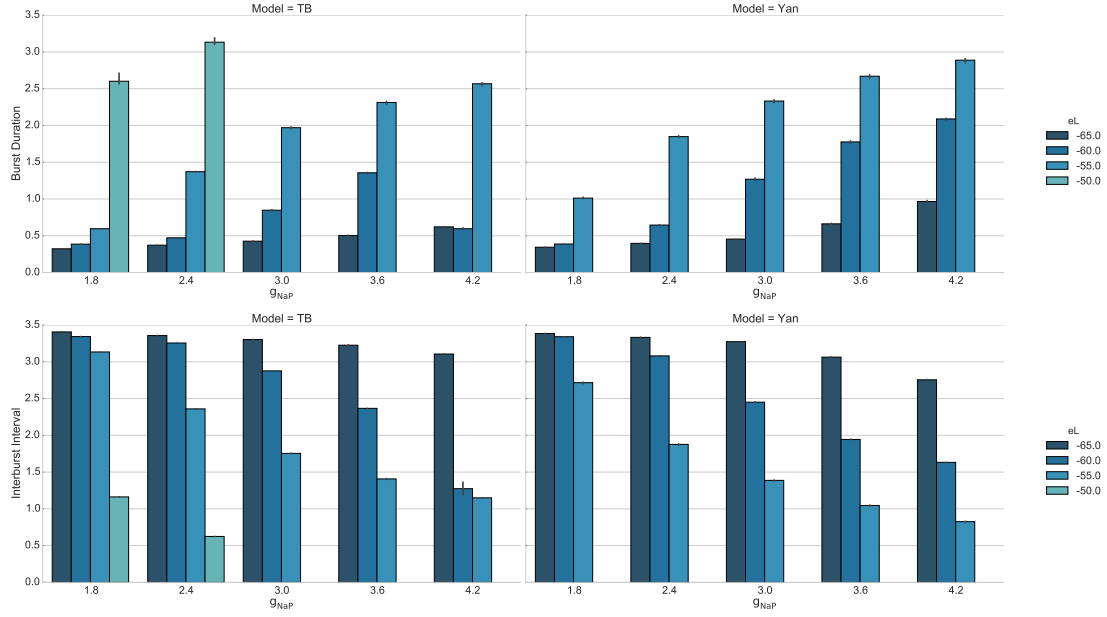
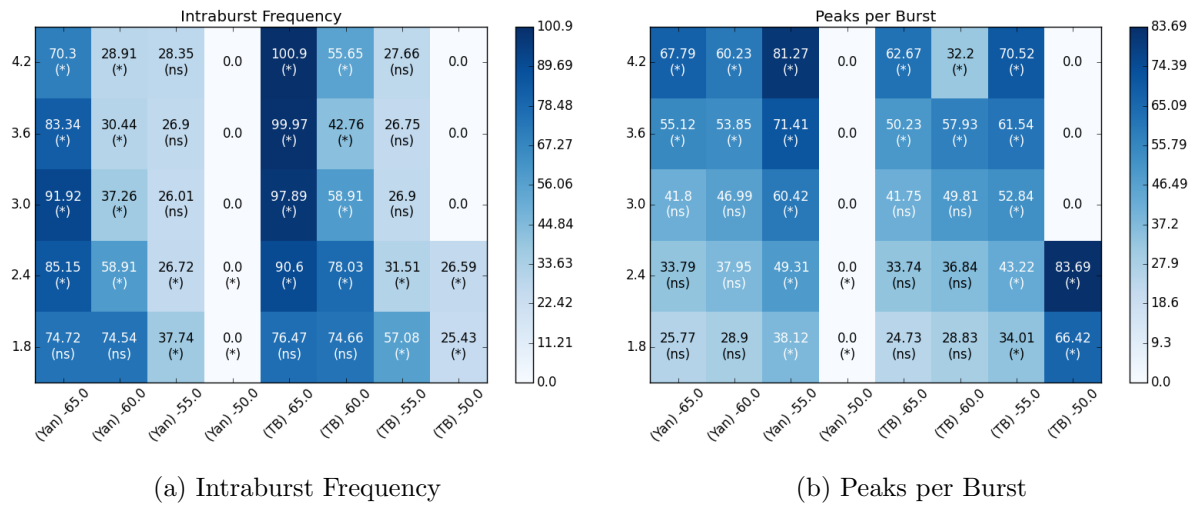


Figure 2



(a) Intraburst Frequency

(b) Peaks per Burst

Figure 3

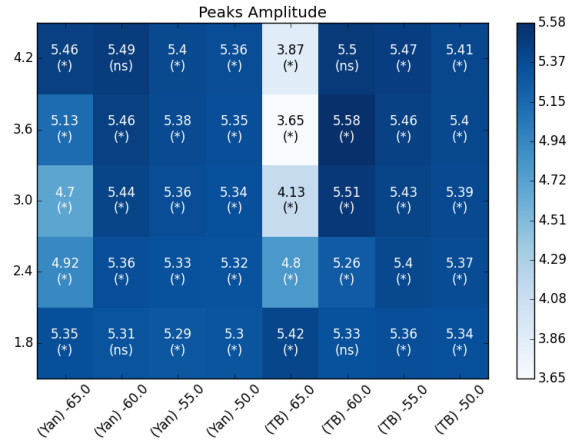


Figure 4: Peak Amplitudes. Stars (*) indicate which cells were significantly different from their other-model counterpart.