

While the authors modified the draft by adding explanations and correcting errors and typos, I think there still remain several points to be clarified. I have not fully finished checking their computations and changes, however, I list up some of them.

1) The issue of real mass parameters in 3d $\mathcal{N} = 4$ quivers is still unclear. If they claim that they are the ordinary $SU(2)$ triplet mass parameters preserving $\mathcal{N} = 4$ supersymmetry, it is required to include other two components in the proposed dictionary. While the authors intend to uniformly describe the 3d case in the same manner as the 5d case, it may lead to confusions and misleading conclusions. I do not know why it should be done. In my opinion, they should be discussed separately and need more delicate treatment.

2) On page 3, in Figure 1, 2 the flow the large m limit is taken for SCFT, but it is not for Gauge Theory. Is it also $m \rightarrow \infty$? If so, it would be better to make it explicit.

3) On page 22, the flow from SCFT $[\mathcal{Q}]$ to SCFT $[\mathcal{Q}_1] \oplus [\mathcal{Q}_2] \oplus$ decoupled in Figure 28 should not be valid for finite m but only for the large m limit (if I understand correctly). Since this is likely to cause a misunderstanding, it would be better to mention about this or describe the flow with “ $m \rightarrow \infty$ ”.

4) On page 44, in the equation after eq.(3.31) one of the term in RHS of second equation will be $\mathcal{F}[\mathcal{Q}_2]$.

5) On page 60, there is the normalization factor, the order of Weyl group $1/N!$ in (C.1). This may affect (C.6) and (C.7).

6) On page 62, the original integration region is $-\infty < \sigma_a, \phi_{\dot{a}} < \infty$. On the other hand, the authors assume that $-m < \sigma_a, \phi_{\dot{a}} < m$ where σ_a and $\phi_{\dot{a}}$ are bounded by the mass parameter. Why is it valid? When we evaluate the integral for finite m and then take large m limit, the result should be different from the original partition function in general. S_{int} is obtained by the logarithm of (C.3b) and it is given by using $\log(2 \cosh(\pi s))$ of equation on page 27, which can be approximated by $\pi|s|$ in the large $|s|$ limit. Since σ can be smaller than $-m$ and larger than m in the original integral region, the expression of S_{int} would not be valid only in $s > 0$ so that I cannot rely on the subsequent discussion. Since this approximation is crucial to determine N_2 as well as the decoupling process which the authors claim, this needs to be clearly explained.

7) On page 63, how is the equation (C.6) obtained? Is it achieved by the saddle point approximation? What is the definition of $\mathcal{Z}_{\mathbb{S}^3}[N_2]$? While the authors claim that the equation holds for finite m , it is unclear how it works. For example, for $N = 2$, it indicates that the partition function splits into three parts, $N_2 = 0, 1$ and 2 . It would be better to give an explicit example by showing $\mathcal{Z}_{\mathbb{S}^3}[0]$, $\mathcal{Z}_{\mathbb{S}^3}[1]$ and $\mathcal{Z}_{\mathbb{S}^3}[2]$.

8) On page 63, in the equation for S_{int} before (C.6) the overall factor $1/2$ will be missing.

9) On page 63, in the limit $m \rightarrow \infty$, (C.7) simply becomes 0. I do not understand what they want to conclude.

9) On page 64, \mathcal{F}_{EFT} is defined by $\mathcal{F} - 2\pi|m|$. It seems that $-2\pi|m|$ is obtained by taking the minus logarithm of $1/(2 \cosh(\pi m))$, the partition function of the free hyper. In the large m it can be approximated by $-\pi|m|$ (I do not know why the factor 2 appears) as a leading term, however, it is not valid for small m . So it should be given by $\log(2 \cosh(\pi m))$ rather than $2\pi|m|$ and Figure 12 would be improved.

10) If I understand correctly, \mathcal{F}_{UV} is the free energy of the original SQED with $m = 0$. But what is the \mathcal{F}_{IR} ?