A Reply

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As I think that your argument on D. Ravenel's proof of non-existence of V(3) at p=5 is incorrect (top of P.5 on your paper). Sure we could not get the conclusion that $d_r(\gamma_3) \neq 0$ from $\beta_1^{17} \neq 0$. But D. Ravenel's idea is as following.

Firstly, he proved that $\beta_1^{21} = 0$, (indeed it is a result from Toda) and $d_{33}(\alpha_1 \beta_{5/5}^4) = \beta_1^{21}$. Then he says that $\alpha_1 \beta_{5/5}^4$ is a linear combination of $\beta_1^3 \gamma_3$, $\underline{3} \beta_1^3 \beta_{14}$ and $\beta_1 x_{761}$, i.e. $\alpha_1 \beta_{5/5}^4 = k_1 \beta_1^3 \gamma_3 + k_2 \underline{3} \beta_1^3 \beta_{14} + k_3 \beta_1 x_{761}$. But $\underline{3} \beta_1^3 \beta_{14}$ and $\beta_1 x_{761}$ are permanent cycles. So

$$d_{33}(k_1 \beta_1^3 \gamma_3 + k_2 \underline{3} \beta_1^3 \beta_{14} + k_3 \beta_1 x_{761}) = d_{33}(k_1 \beta_1^3 \gamma_3) = \beta_1^{21}$$

And then $k_1 \neq 0$ and

$$d_{33}(k_1 \beta_1^3 \gamma_3) = k_1 \beta_1^3 d_{33}(\gamma_3) = \beta_1^{21}$$

Sure I did not check his computation. Maybe Nakai who is at Rochester now did. As K. Shimomura says, he did not check D. Ravenel's computation neither, but D. Ravenel is computing $\pi_n(S^0)$ at $p = 5$ whthin $n \leq 6000$ lately. So he might recomputed that.