Carr, Bloom, Petrovich, and Philpott Reply: Geesaman and Zeidman[1] have pointed out a deficiency in the double ratio ($R=R_Z/R_S$) of isoscalar to isovector inelastic scattering strengths ($R_Z=Z_0^2/Z_1^2$) and proton stripping spectroscopic strengths ($R_S=S_p^0/S_p^1$) predicted in our recent large-basis shell-model study[2] of stretched 6^- states in ^{28}Si as compared with experiment. This is a valid point which was inadequately discussed in our Letter; however, Geesaman and Zeidman also make comparisons with an earlier, more restricted shell-model study[3] and introduce an "experimental" spectroscopic strength ratio[4] in a manner that obscures the improvement in our extended-basis calculation and exaggerates the problem with the double ratio.

Specifically, the theoretical calculation of Ref. 3 predicts more than one "observable" 6^-, $T=0$ excitation as was emphasized in Fig. 1 of our Letter. This additional $T=0$ strength should be included when comparing the results of Ref. 3 with our work. Further, the experimental ratio ($R'=R_S/R_\sigma$) of the spectroscopic factor ratio R_S to the transfer cross-section ratio ($R_\sigma=\sigma_p^0/\sigma_p^1$), $R' \cong 1.25/0.9=1.4$, provides a measure of the influence of finite-well considerations on the interpretation of the transfer reactions[4] (see Fig. 7 in Ref. 4). Since the theoretical calculations of Refs. 2 and 3 were carried out in an oscillator basis, the theoretical S_p^T should be suitably corrected before comparing with $R_S=1.25$. Clausen[5] has shown that finite-well considerations are much less important for inelastic scattering from ^{28}Si.

On the basis of these remarks, we have reconstructed Table I of the Comment by Geesaman and Zeidman below. Under "Amusa" we include all of the observable 6^-, $T=0$ strength that was predicted to fall below the observed 6^-, $T=1$ state. In short, we include two additional low-lying $T=0$ states that are quite strong in the spectrum (cf. Fig. 1 in Ref. 2). Further, we have increased (reduced) all *theoretical* S_p^0 (S_p^1) by $\sqrt{1.4}$ to reflect finite-well effects included in the analysis of Ref. 4. The main effect of this correction is to increase (decrease) the theoretical R_S (R), improving agreement with experiment. The division of the effect between isoscalar and isovector levels is admittedly arbitrary, but does not affect the final ratio considerations.

In this form the table properly reflects the significant improvement that is obtained in the spectrum of 6^- states by extending the basis used in the theoretical calculations. The Z_T^2, S_p^T, R_Z, and R_S all move toward experiment as the basis is expanded with the S_p^T and R_S tending to overshoot somewhat. The Z_T^2 closely follow the S_p^T, so the double ratio R changes only slowly and remains above the data. This slow variation of R is the signature of "fragmentation" and is to be expected in our calculation. Although our results are almost within experimental errors for specific observables, there is a systematic deviation which is amplified in the double ratio R. This indicates the need for additional mechanisms which reduce the Z_T^2 faster than the S_p^T, particularly for the $T=0$ excitations, to obtain further improvement. This will require consideration of effects beyond the current model space, some of which were mentioned in our Letter. Given the substantial uncertainties in the experimental data, the remaining discrepancies are probably only at the 30% level. For example, reducing our R_Z by 28%, to reproduce the experimental value, leads to $R=0.42$ for the double ratio, which is not far from the experimental bounds.

TABLE I. Reconstruction of the table in the preceding Comment (Ref. 1). The experimental data are those used in Ref. 1. The modifications of the theoretical entries are described in the text.

Quantity	Amusa	Carr	Experiment
Z_0^2	0.494	0.203	0.14 ± 0.04
S_p^0	0.904 [a]	0.369 [a]	0.42 ± 0.06
Z_1^2	0.522	0.374	0.33 ± 0.04
S_p^1	0.623 [b]	0.394 [b]	0.40 ± 0.04
R_Z	0.946	0.543	$0.39^{+0.04}_{-0.08}$
R_S	1.451	0.937	1.25 ± 0.10
R	0.652	0.580	$0.31^{+0.04}_{-0.08}$

[a]Calculations scaled up by $\sqrt{1.4}$.

[b]Calculations scaled down by $\sqrt{1.4}$.

The suggestions of Geesaman and Zeidman has indicated a useful format for the presentation of our results. This format provides a clearer view of both the successes and limitations of the extended-basis shell-model calculation and helps identify the features for future studies. The first sentence in the summary of our Letter may have been somewhat overstated, but it was primarily directed towards the improvement gained over the earlier shell-model work.

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