



Figure 4-figure supplement 1: Comparison of analytical approximation and model predictions of the relation between release kinetics and RRP depletion. For small  $k_{2,max}$ , the duration of the sucrose pulse dictates the depleted RRP fraction: 7s stimuli deplete a smaller fraction than stimuli of 20s and longer. For large  $k_{2,max}$ , the blue curve (D depletable) exceeds the others, because the steady-state RRP at the end of the stimulus is smaller when D is depletable. This is due to eq. (24):  $R_f = k_1 D_f / (k_{-1} + k_{2,max})$ . A smaller upstream pool at the end of the stimulus ( $D_f$ ) thus yields a smaller  $R_f$  and hence a larger depleted RRP fraction  $(R_i - R_f) / R_i$ .