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CORRECTION

Correction to: Direct Numerical Simulation of head-on quenching of statistically planar turbulent premixed methane-air flames using a detailed chemical mechanism

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In Lai et al. [1] the distributions of reaction progress variable c, non-dimensional temperature $T = (\hat{T} - T_0)/(T_{ad} - T_0)$ (where $\hat{T}$ is the instantaneous dimensional temperature, T_0 is the unburned gas temperature and T_{ad} is the adiabatic flame temperature), normalised heat release rate $\Omega_\mathrm{T} = \dot{\omega}_\mathrm{T} \times \delta_\mathrm{th}/(\rho_0 S_\mathrm{L} C_{\mathrm{p}0} T_0)$ (where $\dot{\omega}_\mathrm{T}$ is the dimensional heat release rate) and normalised reaction rate of reaction progress variable $\Omega_c = \dot{\omega} \times \delta_\mathrm{th}/\rho_0 S_\mathrm{L}$ (where $\dot{\omega}$ is the reaction rate of reaction progress variable) in the wall normal direction are shown in Fig. 3 at different time instants for laminar flames using detailed (16 species, 25 reaction steps) [2] and single-step chemical mechanisms (i.e. cases A and B respectively) with ρ_0, $C_{\mathrm{p}0} S_L$ and δ_th being the unburned gas density, mixture specific heat at constant pressure in the unburned gas, unstrained laminar burning velocity and the thermal flame thickness, respectively. Unfortunately, in Fig. 3 of [1] the distributions of reaction progress variable c and non-dimensional temperature T got interchanged for the simple chemistry case B. It was an error in plotting, and this error did not affect any of the results and conclusions in the paper [1]. The revised figure is shown below as Fig. 1 where distributions of c, T, Ω_T and Ω_c in the wall normal direction are shown for cases A (detailed chemistry) and

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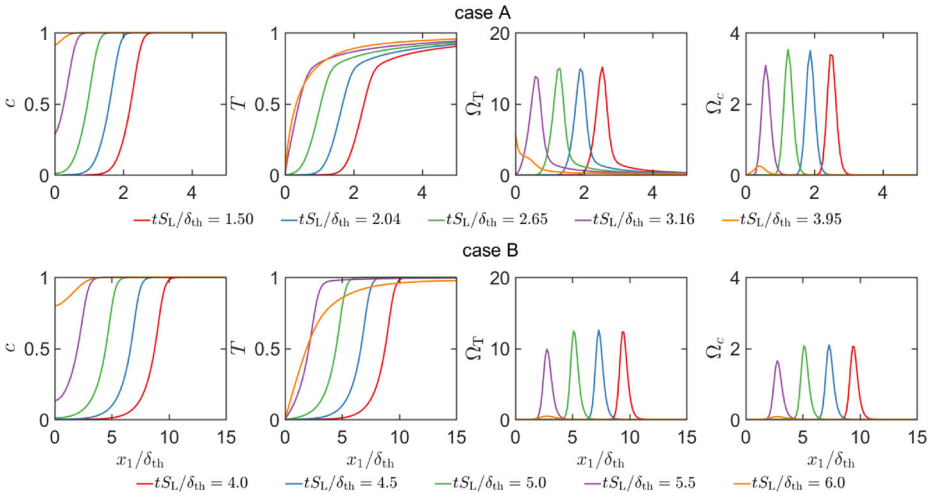

Fig. 1 Variations of c, T, Ω_T and Ω_c with x_1/δ_{th} at different time instants for laminar head-on quenching for both detailed (**a**) and simple (**b**) chemistry cases

B (single-step chemistry). The non-dimensional temperature T remains 0 at the wall (i.e. $x_1/\delta_{th} = 0$) due to Dirichlet boundary condition (i.e. temperature at the wall corresponds to the unburned gas temperature) for both cases A and B. However, the value of c increases with time at the wall with the progress of head-on quenching for both cases A and B due to zero gradient boundary condition in the wall normal direction.

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Conflict of interest The authors declare that they have no conflict of interest.

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1. Lai, J., Klein, M., Chakraborty, N.: Direct Numerical Simulation of head-on quenching of statistically planar turbulent premixed methane-air flames using a detailed chemical mechanism. Flow Turb. Combust. https://doi.org/10.1007/s10494-018-9907-5
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