Erratum: Several Theorems in Time-Dependent Density Functional Theory [Phys. Rev. Lett. 82, 378 (1999)]

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The dependence on the initial wave function, $\Psi(0) = \Psi(\mathbf{r}_1 \cdots \mathbf{r}_N, t = 0)$, was missing from the relations between the scaling and coupling constant. By considering $\Psi^\lambda[n;\Psi(0)]$, the wave function with electron-electron repulsion $\lambda \hat{V}_{ee}$ generating n from an initial wave function $\Psi(0)$, one finds

$$\Psi^\lambda[n;\Psi(0)] = \Psi_{\lambda\lambda^2}[n_{1/\lambda,1/\lambda^2};\Psi_{1/\lambda}(0)], \tag{15}$$

where $\Psi_\gamma(0) = \gamma^{3N/2}\Psi(\gamma\mathbf{r}_1 \cdots \gamma\mathbf{r}_N, t = 0)$. Thus Eq. (16) becomes

$$v_{\mathrm{XC}}^\lambda[n;\Psi(0),\Phi(0)](\mathbf{r}t) = \lambda^2 v_{\mathrm{XC}}[n_{1/\lambda,1/\lambda^2};\Psi_{1/\lambda}(0),\Phi_{1/\lambda}(0)](\lambda\mathbf{r},\lambda^2 t), \tag{16}$$

where $\Phi(0)$ is the initial state in the Kohn-Sham system, while Eq. (17) becomes

$$E_{\mathrm{X}}[n_{\gamma\gamma^2};\Phi_\gamma(0)](t) = \gamma E_{\mathrm{X}}[n;\Phi(0)](\gamma^2 t). \tag{17}$$

[We also note that, in Eq. (14), the coordinates in the external potential should have been scaled.]

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