9. $\dfrac{\partial u}{\partial t}=\dfrac{a}{x^n}\dfrac{\partial}{\partial x}\left(x^n\dfrac{\partial u}{\partial x}\right)+u^{1+kn}f\left(u^n w^m\right),\quad \dfrac{\partial w}{\partial t}=\dfrac{b}{x^n}\dfrac{\partial}{\partial x}\left(x^n\dfrac{\partial w}{\partial x}\right)+w^{1-km}g\left(u^n w^m\right).$

Self-similar solution:

$$u=(C_1t+C_2)^{-\frac{1}{kn}}y(\xi),\qquad w=(C_1t+C_2)^{\frac{1}{km}}z(\xi),\qquad \xi=\frac{x}{\sqrt{C_1t+C_2}},$$

where C_1 and C_2 are arbitrary constants, and the functions $y=y(\xi)$ and $z=z(\xi)$ are determined by the system of ordinary differential equations

$$a\xi^{-n}(\xi^n y'_\xi)'_\xi+\frac{1}{2}C_1\xi y'_\xi+\frac{C_1}{kn}y+y^{1+kn}f\left(y^n z^m\right)=0,$$
$$b\xi^{-n}(\xi^n z'_\xi)'_\xi+\frac{1}{2}C_1\xi z'_\xi-\frac{C_1}{km}z+z^{1-km}g\left(y^n z^m\right)=0.$$

