Symbolic solutions of algebraic differential equations

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An ordinary algebraic differential equation is a polynomial relation between a variable x, a function $y(x)$ depending on x, and some of the derivatives of this function. I.e.,

$$F(x, y, ..., y^{(n)}) = 0.$$

Of course this can be generalized to the partial case. We present methods from commutative algebra and algebraic geometry for determining general solutions of such algebraic differential equations.