Differential linear logic and the differential lambda-calculus use an operation of addition on terms and require their denotational models to be additive categories: this is essentially due to the Leibniz rule of the differential calculus which corresponds to the interaction between contraction and codereliction in DiLL. Though, many interesting models of linear logic and of the lambda-calculus are not additive categories and their morphisms are nevertheless clearly differentiable and even analytic: this is most typically the case of probabilistic coherence spaces. This talk provides a general presentation of coherent differentiation which is a way of equipping a non additive category with a differential structure. I will focus on the "elementary" situation where the whole coherent differential structure boils down to a !-coalgebra structure on 1&1, of which I will also describe a concrete instance. I will finally present a syntactic counterpart of coherent differentiation which is a deterministic extension of the well-known Turing-complete functional programming language PCF.