• **Fit**

  `Fit[data, funs, vars]` finds a least-squares fit to a list of data as a linear combination of the functions `funs` of variables `vars`.

  The data can have the form `{x_1, y_1, ..., f_1}, {x_2, y_2, ..., f_2}, ...`, where the number of coordinates `x, y, ...` is equal to the number of variables in the list `vars`.

  The data can also be of the form `{f_1, f_2, ...}`, with a single coordinate assumed to take values 1, 2, ...

  The argument `funs` can be any list of functions that depend only on the objects `vars`.

  `Fit[{f_1, f_2, ...}, {x_1, x_2}], x]` gives a quadratic fit to a sequence of values `f_i`.

  The result is of the form `a_0 + a_1 x + a_2 x^2`, where the `a_i` are real numbers.

  The successive values of `x` needed to obtain the `f_i` are assumed to be 1, 2, ...

  `Fit[{x_1, f_1}, {x_2, f_2}, ...], {x_1, x_2}]` does a quadratic fit, assuming a sequence of `x` values `x_i`.

  `Fit[{x_1, y_1, f_1}, ...], {x_1, y_1}, (x, y)]` finds a fit of the form `a_0 + a_1 x + a_2 y`.

  `Fit[data, {f_1, f_2}, ...], {f_1, ...}, vars]` fits the data to rational function of the form 

  \[
  \frac{a_0 + a_1 f_1 + a_2 f_2 + \ldots}{b_0 + b_1 f_1 + \ldots}.
  \]

  `Fit` always finds the linear combination of the functions in the list `forms` that minimizes the sum of the squares of deviations from the values `f_i`.

  See page 461. See also: `Solve`, `SingularValues`, `FindMinimum`.

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