wards. Assume that f and λ only are dependent through the equation $(f, L(\lambda)f) = 0$. Hence, the following equation is valid between $\delta\lambda$ and δf:

$$2(\delta f, Lf) + \delta\lambda(f, L'(\lambda)f) = 0.$$

This means that if a solution to $F = 0$ is found such that $\delta\lambda = 0$ for any δf, we must have $Lf = 0$ with the presumptions made in [1] concerning the inner product. Hence, for the functional equation $F = 0$, if we find a solution λ which does not change when we change the function f by any small function, then λ and f must be a solution of $L(\lambda)f = 0$. There is no other hidden dependence involved in this reasoning.

2) Consider the standard eigenvalue problem, which is a special case of the present, more general formulation. The resulting functional $\lambda = (f, Lf)/(f, f)$ is proven stationary in any textbook without any additional assumption of dependence of f on λ. This can also be written in an equation form as $(f, Lf) + \lambda(f, f) = 0$ or $(f, L(\lambda)f) = 0$ with $L(\lambda) = L + \lambda I$, whence the method suggested by Dr. Gabriel does not produce the normal result in this case.

3) Let us consider a similar example for functions. The equation $F(x, y) = (x-1)^2 + y^2 - 1 = 0$ describes a circle with a point at $x = 1, y = 1$. To study neighboring points, we set $x = 1 + \delta x$ and $y = 1 + \delta y$. Although $y = 1$ depends on $x = 1$, we do not take this dependence into account when writing the equation for the differentials: $(\delta x)^2 + 2\delta y = 0$, which shows us that δy is of second order with respect to δx.

4) Take the example given by Dr. Gabriel, with $L(\lambda) = d^2/dx^2 + \lambda^2$ and $B(\lambda)$ defined by the two endpoint conditions $f(0) = 0, f'(a) - \lambda f(a) = 0$. This leads to the following functional equation:

$$F(\lambda; f) = \int_0^a \left(-(f')^2 + \lambda^2 f^2\right) dx + \lambda f^2(a) - 2f'(0)f(0) = 0 \quad (1)$$

which is of second degree in λ and easily solvable. To prove the stationarity, one can set $\delta\lambda = 0$ and take a variation in f. After some partial integrations we readily obtain

$$2\int_0^a \delta f(f'' + \lambda^2 f)\, dx - 2\delta f(a)(f'(a) - \lambda f(a)) - 2f(0)\delta f'(0) = 0 \quad (2)$$

from which the original equations are seen to result if (2) is valid for arbitrary δf. It is no matter if we consider variation in (1) or in the solution functional $\lambda(f)$, if only we treat λ and f independent.

As a summary, it is observed that there seems to be no use in pursuing Dr. Gabriel's path through the jungle of mathematical semantics since it does not produce any useful method, whereas that given in [1] does.

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Corrections to "A Planar Quasi-Optical Subharmonically Pumped Mixer Characterized by Isotropic Conversion Loss"

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In the above paper,[1] the antenna patterns in Figs. 8 and 9 were transposed. Fig. 8 is actually the H-plane pattern and Fig. 9 is the E-plane pattern.

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