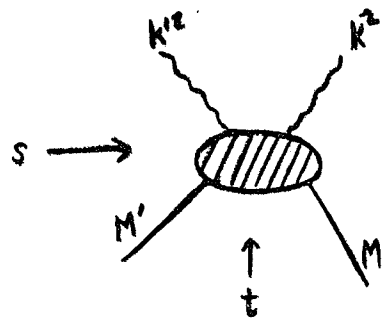
We can insert a complete set of intermediate states having total space momentum equal to zero and masses M"; the four momentum transfers to the intermediate states are $k'^2 = -(M' - M'')^2$ and $k^2 = -(M'' - M)^2$.

Now the equal time commutator can be considered as the energy integral of the imaginary part of a suitable scattering amplitude as shown in the following diagram:



+ crossed diagram

and in the case of $\underset{\sim}{P} = 0$ one very annoying thing is that the four momentum transfer to each intermediate state depends on its mass. This amounts in dispersion language to doing a dispersion integral not in the relativistic variable s with fixed external masses, but in the energy variable with the space momentum fixed and variable masses, which is well known to be a disgusting way to do dispersion theory.

Moreover, if the four-momentum transfer depends on the mass differences then we can get, for certain values of masses of intermediate states, resonances in the channel of the currents. For instance, in the case of vector currents, we could get k^2 or k'^2 equal to the square of the ρ mass, and this could terribly enhance the continuum contribution in that region, seriously interfering with the program of approximating the sum over intermediate states with few resonant states, a thing we will often like to do for practical purposes of calculation.