```
# Talbot suggested that the Bromwich line be deformed into a contour that begins
# and ends in the left half plane, i.e., z ? -8 at both ends.
# Due to the exponential factor the integrand decays rapidly
# on such a contour. In such situations the trapezoidal rule converge
# extraordinarily rapidly.
# For example here we compute the inverse transform of F(s) = 1/(s+1) at t = 1
#--------------------------------------------------------------------------------
#>> pkg load symbolic
#>> syms s
#>> F=1/(s+1)
#F = (sym)
#
#    1
#  -----
#  s + 1
#
#>> error=talbot(function_handle(F),1,24)-exp(-1)
#ans =   1.6098e-015
#----------------------------------------------------------------------------------
#
# Talbot method is very powerful here we see an error of 1.61e-015
# with only 24 function evaluations
#
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#
# Reference
# L.N.Trefethen, J.A.C.Weideman, and T.Schmelzer. Talbot quadratures
# and rational approximations. BIT. Numerical Mathematics,
# 46(3):653 670, 2006.

function ilt = talbot(f_s, t, N)
h=2*pi/N;

#   Shift contour to the right in case there is a pole on the positive real axis : Note the contour will
#   not be optimal since it was originally devoloped for function with
#   singularities on the negative real axis
#   For example take F(s) = 1/(s-1), it has a pole at s = 1, the contour needs to be shifted with one
#   unit, i.e shift  = 1. But in the test example no shifting is necessary
 shift=0;

 ans=0;
 for k=0:N
   theta=-pi+(k+1/2)*h;
   z=shift+N/t*(0.5017*theta*cot(0.6407*theta)-0.6122+0.2645i*theta);
dz=N/t*(-0.5017*0.6407*theta/sin(0.6407*theta)^2+0.5017*cot(0.6407*theta)+0.2645i);
   ans=ans+exp(z*t)*f_s(z)*dz;
 endfor
   ilt=real((h/(2i*pi))*ans);
endfunction
```