

Scilab comes pre-loaded with a variety of functions to handle the Bessel and Modified Bessel Functions of First and Second Kind.

These are:

besseli

Modified Bessel functions of the first kind (I sub alpha).

besselj

Bessel functions of the first kind (J sub alpha).

besselk

Modified Bessel functions of the second kind (K sub alpha).

bessely

Bessel functions of the second kind (Y sub alpha).

besselh

Bessel functions of the third kind (aka Hankel functions)

Calling Sequence

`y = besseli(alpha,x [,ice])`

`y = besselj(alpha,x [,ice])`

`y = besselk(alpha,x [,ice])`

`y = bessely(alpha,x [,ice])`

`y = besselh(alpha,x)`

`y = besselh(alpha,K,x [,ice])`

Arguments

`x`
real or complex vector.

`alpha`
real vector

`ice`
integer flag, with default value 0

`K`
integer, with possible values 1 or 2, the Hankel function type.

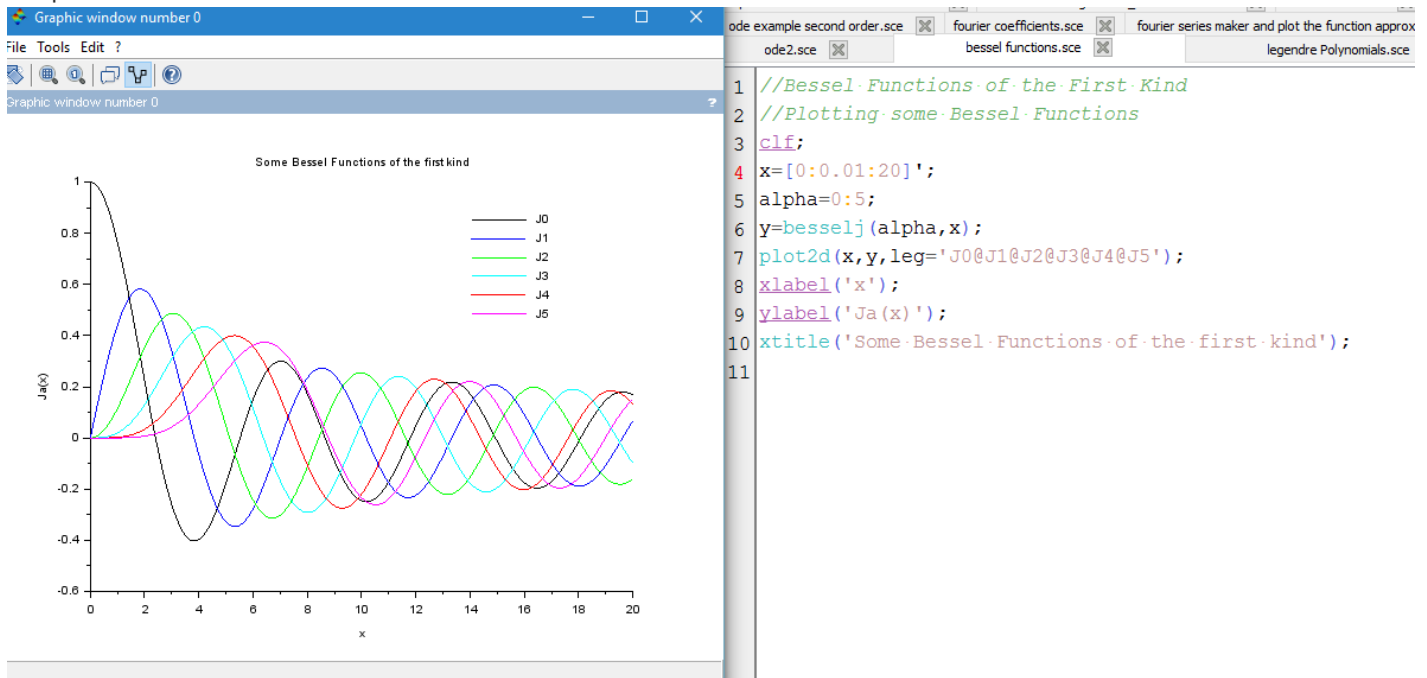
Now our objective is to plot the First 6 Bessel Functions of the First Kind.

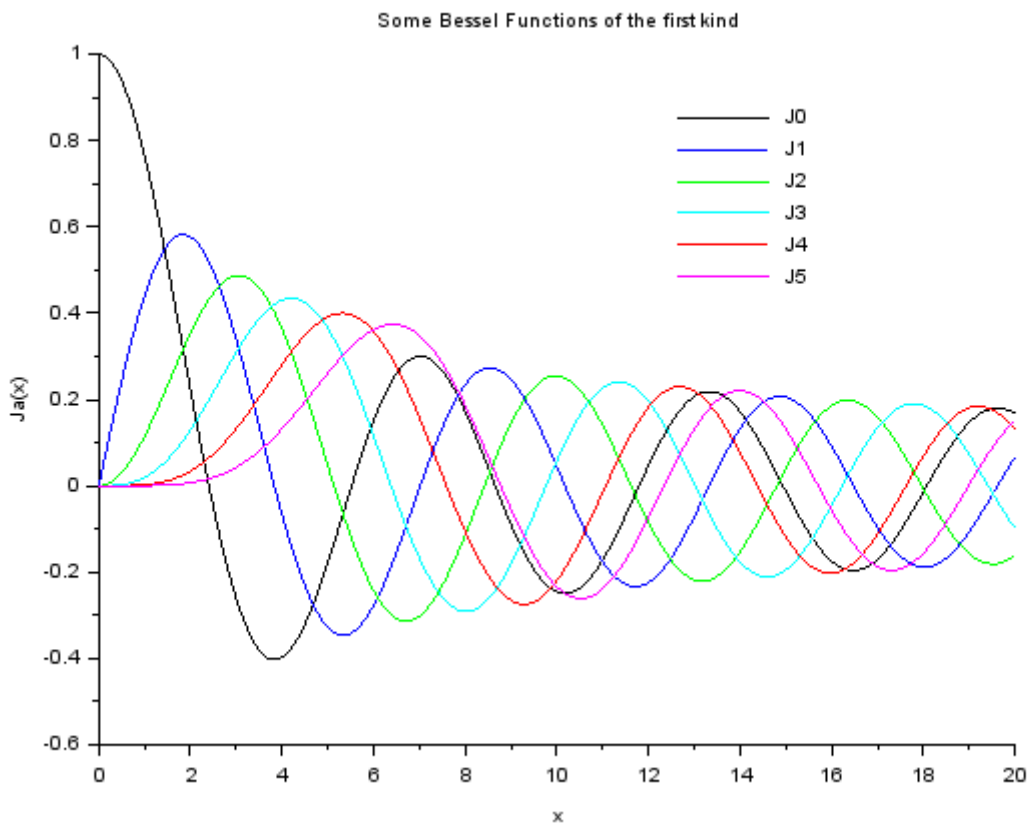
So I am going to use $\text{besselj}(\alpha, x)$.

The following code which is pretty much self-explanatory calculates and plots the First six Bessel Functions, that is $J_0(x), J_1(x), J_2(x), \dots, J_5(x)$.

```
//Bessel Functions of the First Kind
//Plotting some Bessel Functions
clf;
x=[0:0.01:20]';
alpha=0:5;
y=besselj(alpha,x);
plot2d(x,y,leg='J0@J1@J2@J3@J4@J5');
xlabel('x');
ylabel('Ja(x)');
xtitle('Some Bessel Functions of the first kind');
```

Output:





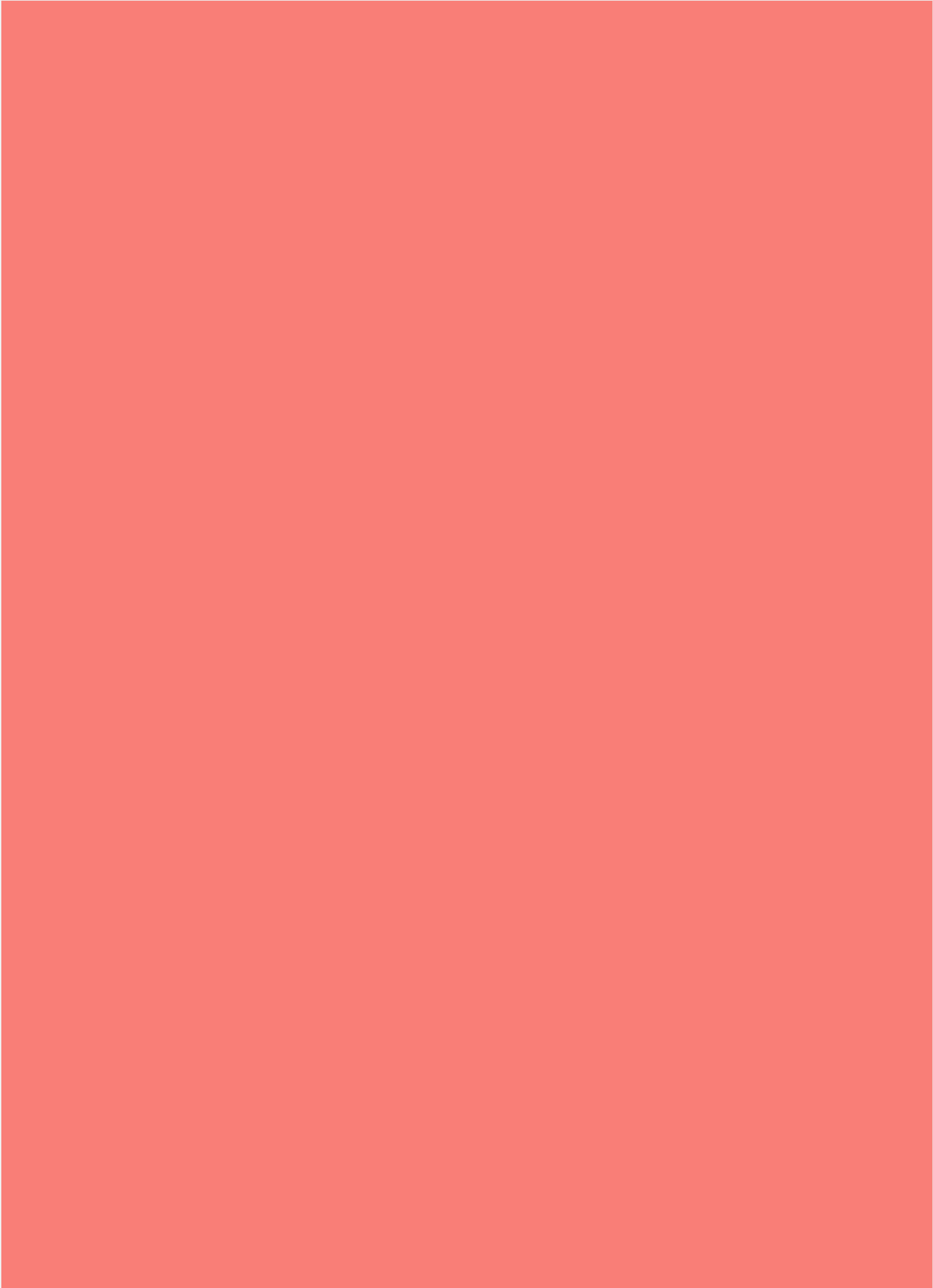
Video Tutorials:

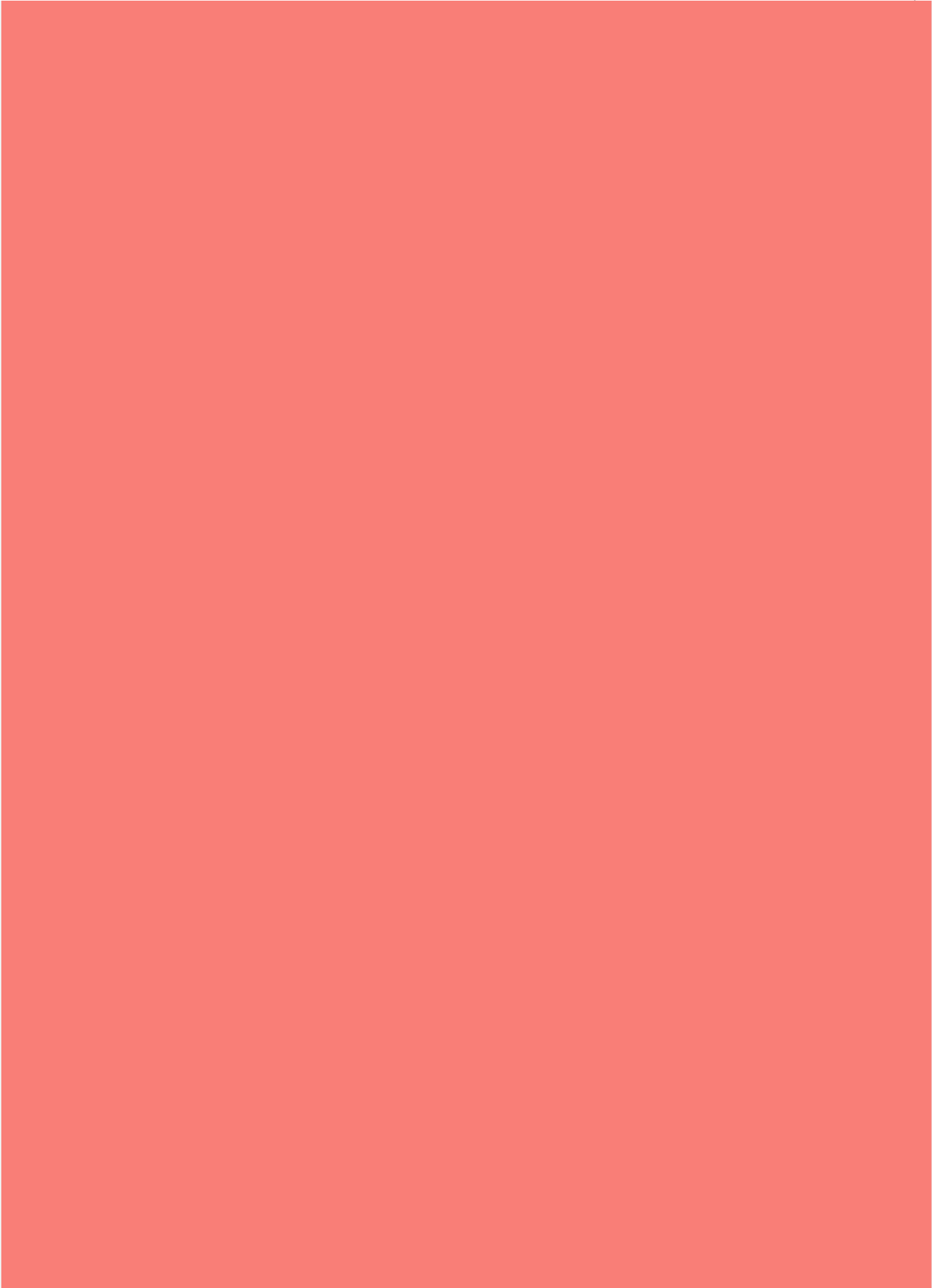


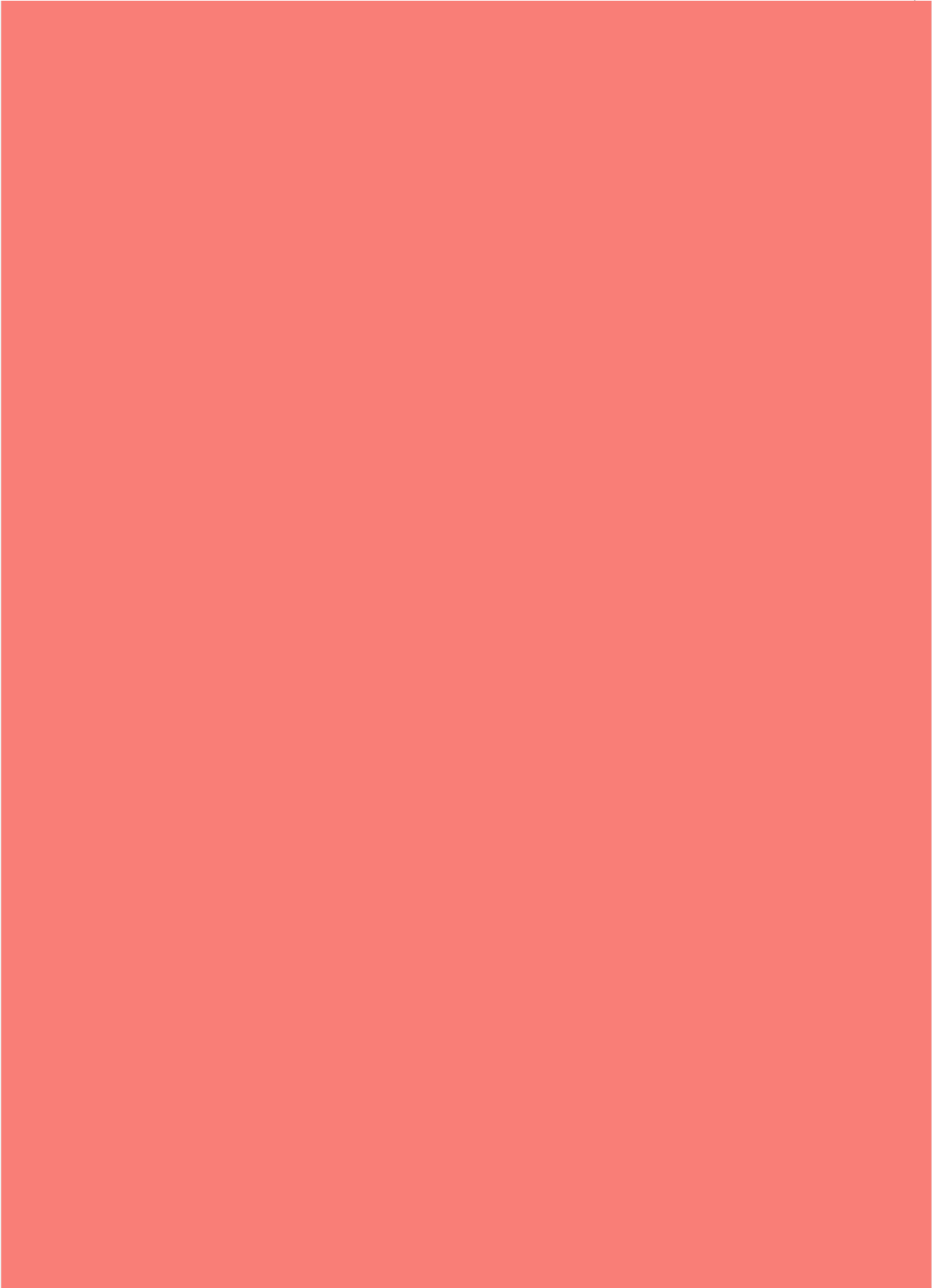
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