```
(***Note: Values for generating these plots are embedded within the raw data set,
which is too large to upload onto the public data repository***)

controlColor = Black;

v1Color = Blend[{RGBColor["#ff1f5b"], Green}, 0.25];

lpColor = Blend[{RGBColor["#009ade"], Green}, 0.25];

lmColor = Blend[{RGBColor["#f28522"], Green}, 0.25];

(*************************)

dateMouseListControl =
  {{"011622", "Mouse22550"}, {"011822", "Mouse22550"}, {"012322", "Mouse22549"},
   {"012622", "Mouse22549"}, {"021022", "Mouse22549"}, {"010522", "Mouse22599"},
   {"021022", "Mouse22599"}, {"021422", "Mouse22599"}, {"033122", "Mouse22544"},
   {"040122", "Mouse22562"}, {"040322", "Mouse22544"}, {"040322", "Mouse22562"}};

(***V1 axons, eOPN3***)

dateMouseListV1axons = {{"112221", "Mouse22485"}, {"112321", "Mouse22485"},
    {"120321", "Mouse22485"}, {"120821", "Mouse22517"}, {"121321", "Mouse22485"},
    {"010122", "Mouse22547"}, {"011222", "Mouse22501"}, {"011622", "Mouse22504"},
    {"011822", "Mouse22504"}, {"012322", "Mouse22575"}, {"012722", "Mouse22575"},
    {"013122", "Mouse22504"}, {"021022", "Mouse22504"}, {"021222", "Mouse22575"},
    {"032222", "Mouse22506"}, {"032622", "Mouse22506"}, {"040422", "Mouse22506"}};

(***LP axons, eOPN3***)

dateMouseListLPaxons =
  {{"020122", "Mouse22413"}, {"020922", "Mouse22413"}, {"021422", "Mouse22413"},
   {"012622", "Mouse22514"}, {"012822", "Mouse22514"}, {"020122", "Mouse22514"},
   {"021122", "Mouse22519"}, {"021122", "Mouse22535"}, {"021522", "Mouse22535"},
   {"021722", "Mouse22519"}, {"030122", "Mouse22513"}, {"030222", "Mouse22521"},
   {"030722", "Mouse22513"}, {"030822", "Mouse22521"}, {"030822", "Mouse22519"},
   {"031522", "Mouse22513"}, {"031522", "Mouse22521"}, {"031922", "Mouse22521"},
   {"032022", "Mouse22519"}, {"032222", "Mouse22513"}, {"040622", "Mouse22513"}};

(***LM axons, eOPN3***)

dateMouseListLMaxons = {{"022022", "Mouse22563"},
    {"022222", "Mouse22563"}, {"031722", "Mouse22539"}, {"031722", "Mouse22570"},
    {"032022", "Mouse22539"}, {"032022", "Mouse22570"}, {"032322", "Mouse22539"},
    {"032522", "Mouse22539"}, {"041022", "Mouse22407"}, {"041522", "Mouse22407"}};

(*************************)

pairedROIsControl =
  Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
      dateMouseListControl[[n, 1]], "/", dateMouseListControl[[n, 2]],
      "/PairedAnalysis/", dateMouseListControl[[n, 1]], "_", dateMouseListControl[[n, 2]],
      "_pairedROIs.txt"], "List"], {n, 1, Length[dateMouseListControl]}];
```

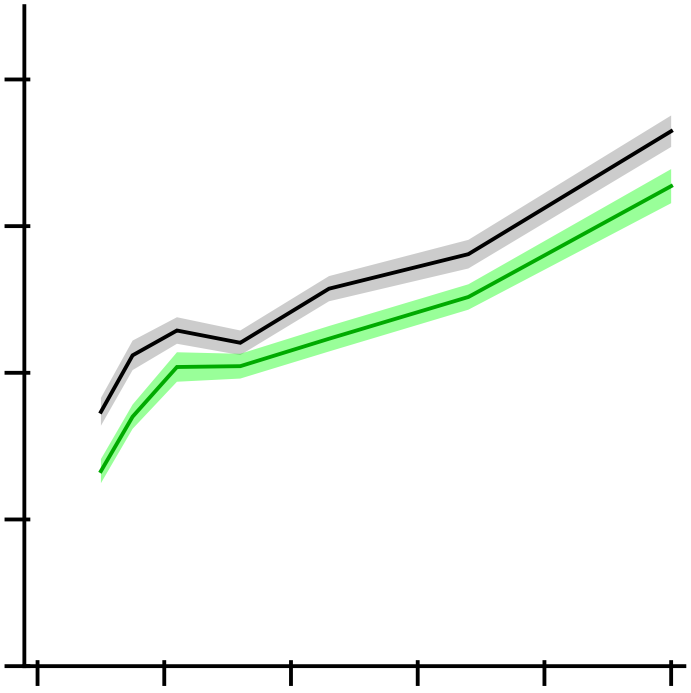
```
In[•]:= pairedROIsV1axons =
  Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
      dateMouseListV1axons[[n, 1]], "/", dateMouseListV1axons[[n, 2]],
      "/PairedAnalysis/", dateMouseListV1axons[[n, 1]], "_", dateMouseListV1axons[[n, 2]],
      "_pairedROIs.txt"], "List"], {n, 1, Length[dateMouseListV1axons]}];

In[•]:= pairedROIsLPaxons =
  Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
      dateMouseListLPaxons[[n, 1]], "/", dateMouseListLPaxons[[n, 2]],
      "/PairedAnalysis/", dateMouseListLPaxons[[n, 1]], "_", dateMouseListLPaxons[[n, 2]],
      "_pairedROIs.txt"], "List"], {n, 1, Length[dateMouseListLPaxons]}];

In[•]:= pairedROIsLMaxons =
  Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
      dateMouseListLMaxons[[n, 1]], "/", dateMouseListLMaxons[[n, 2]],
      "/PairedAnalysis/", dateMouseListLMaxons[[n, 1]], "_", dateMouseListLMaxons[[n, 2]],
      "_pairedROIs.txt"], "List"], {n, 1, Length[dateMouseListLMaxons]}];

In[•]:= (*****************************)

In[•]:= normCRFsBeforeControl =
  Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
       dateMouseListControl[[n, 1]], "/", dateMouseListControl[[n, 2]],
       "/PairedAnalysis/", dateMouseListControl[[n, 1]], "_",
       dateMouseListControl[[n, 2]], "_normCRFbefore_ROI", ToString[i], ".txt"], "List"],
    {i, pairedROIsControl[[n]]}], {n, 1, Length[dateMouseListControl]}];

In[•]:= normCRFsBeforeControlYs = Table[Table[Part[#, 2] & /@ normCRFsBeforeControl[[m, n]],
    {n, 1, Length[normCRFsBeforeControl[[m]]]}], {m, 1, Length[normCRFsBeforeControl]}];

In[•]:= normCRFsAfterControl =
  Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
       dateMouseListControl[[n, 1]], "/", dateMouseListControl[[n, 2]],
       "/PairedAnalysis/", dateMouseListControl[[n, 1]], "_",
       dateMouseListControl[[n, 2]], "_normCRFafter_ROI", ToString[i], ".txt"], "List"],
    {i, pairedROIsControl[[n]]}], {n, 1, Length[dateMouseListControl]}];

In[•]:= normCRFsAfterControlYs = Table[Table[Part[#, 2] & /@ normCRFsAfterControl[[m, n]],
    {n, 1, Length[normCRFsAfterControl[[m]]]}], {m, 1, Length[normCRFsAfterControl]}];

In[•]:= (*****************************)

In[•]:= normCRFsBeforeV1axons =
  Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
       dateMouseListV1axons[[n, 1]], "/", dateMouseListV1axons[[n, 2]],
       "/PairedAnalysis/", dateMouseListV1axons[[n, 1]], "_",
       dateMouseListV1axons[[n, 2]], "_normCRFbefore_ROI", ToString[i], ".txt"], "List"],
    {i, pairedROIsV1axons[[n]]}], {n, 1, Length[dateMouseListV1axons]}];

In[•]:= normCRFsBeforeV1axonsYs = Table[Table[Part[#, 2] & /@ normCRFsBeforeV1axons[[m, n]],
    {n, 1, Length[normCRFsBeforeV1axons[[m]]]}], {m, 1, Length[normCRFsBeforeV1axons]}];
```

```
In[•]:= normCRFsAfterV1axons =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListV1axons[[n, 1]], "/", dateMouseListV1axons[[n, 2]],
                "/PairedAnalysis/", dateMouseListV1axons[[n, 1]], "_",
                dateMouseListV1axons[[n, 2]], "_normCRFafter_ROI", ToString[i], ".txt"], "List"],
            {i, pairedROIsV1axons[[n]]}], {n, 1, Length[dateMouseListV1axons]}];

In[•]:= normCRFsAfterV1axonsYs = Table[Table[Part[#, 2] & /@ normCRFsAfterV1axons[[m, n]],
            {n, 1, Length[normCRFsAfterV1axons[[m]]]}], {m, 1, Length[normCRFsAfterV1axons]}];

In[•]:= (*****************************)

In[•]:= normCRFsBeforeLPaxons =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListLPaxons[[n, 1]], "/", dateMouseListLPaxons[[n, 2]],
                "/PairedAnalysis/", dateMouseListLPaxons[[n, 1]], "_",
                dateMouseListLPaxons[[n, 2]], "_normCRFbefore_ROI", ToString[i], ".txt"], "List"],
            {i, pairedROIsLPaxons[[n]]}], {n, 1, Length[dateMouseListLPaxons]}];

In[•]:= normCRFsBeforeLPaxonsYs = Table[Table[Part[#, 2] & /@ normCRFsBeforeLPaxons[[m, n]],
            {n, 1, Length[normCRFsBeforeLPaxons[[m]]]}], {m, 1, Length[normCRFsBeforeLPaxons]}];

In[•]:= normCRFsAfterLPaxons =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListLPaxons[[n, 1]], "/", dateMouseListLPaxons[[n, 2]],
                "/PairedAnalysis/", dateMouseListLPaxons[[n, 1]], "_",
                dateMouseListLPaxons[[n, 2]], "_normCRFafter_ROI", ToString[i], ".txt"], "List"],
            {i, pairedROIsLPaxons[[n]]}], {n, 1, Length[dateMouseListLPaxons]}];

In[•]:= normCRFsAfterLPaxonsYs = Table[Table[Part[#, 2] & /@ normCRFsAfterLPaxons[[m, n]],
            {n, 1, Length[normCRFsAfterLPaxons[[m]]]}], {m, 1, Length[normCRFsAfterLPaxons]}];

In[•]:= (*****************************)

In[•]:= normCRFsBeforeLMaxons =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListLMaxons[[n, 1]], "/", dateMouseListLMaxons[[n, 2]],
                "/PairedAnalysis/", dateMouseListLMaxons[[n, 1]], "_",
                dateMouseListLMaxons[[n, 2]], "_normCRFbefore_ROI", ToString[i], ".txt"], "List"],
            {i, pairedROIsLMaxons[[n]]}], {n, 1, Length[dateMouseListLMaxons]}];

In[•]:= normCRFsBeforeLMaxonsYs = Table[Table[Part[#, 2] & /@ normCRFsBeforeLMaxons[[m, n]],
            {n, 1, Length[normCRFsBeforeLMaxons[[m]]]}], {m, 1, Length[normCRFsBeforeLMaxons]}];

In[•]:= normCRFsAfterLMaxons =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListLMaxons[[n, 1]], "/", dateMouseListLMaxons[[n, 2]],
                "/PairedAnalysis/", dateMouseListLMaxons[[n, 1]], "_",
                dateMouseListLMaxons[[n, 2]], "_normCRFafter_ROI", ToString[i], ".txt"], "List"],
            {i, pairedROIsLMaxons[[n]]}], {n, 1, Length[dateMouseListLMaxons]}];

In[•]:= normCRFsAfterLMaxonsYs = Table[Table[Part[#, 2] & /@ normCRFsAfterLMaxons[[m, n]],
            {n, 1, Length[normCRFsAfterLMaxons[[m]]]}], {m, 1, Length[normCRFsAfterLMaxons]}];

In[•]:= (*******************************)
```

```
In[•]:= meanNormCRFBeforeControl = Mean[Flatten[normCRFsBeforeControlYs, 1]];

In[•]:= semNormCRFBeforeControl = StandardDeviation[Flatten[normCRFsBeforeControlYs, 1]] /
          Sqrt[Length[Flatten[normCRFsBeforeControlYs, 1]]];

In[•]:= (***)

In[•]:= meanNormCRFAfterControl = Mean[Flatten[normCRFsAfterControlYs, 1]];

In[•]:= semNormCRFAfterControl = StandardDeviation[Flatten[normCRFsAfterControlYs, 1]] /
          Sqrt[Length[Flatten[normCRFsAfterControlYs, 1]]];

In[•]:= (*********************************)

In[•]:= meanNormCRFBeforeV1axons = Mean[Flatten[normCRFsBeforeV1axonsYs, 1]];

In[•]:= semNormCRFBeforeV1axons = StandardDeviation[Flatten[normCRFsBeforeV1axonsYs, 1]] /
          Sqrt[Length[Flatten[normCRFsBeforeV1axonsYs, 1]]];

In[•]:= (***)

In[•]:= meanNormCRFAfterV1axons = Mean[Flatten[normCRFsAfterV1axonsYs, 1]];

In[•]:= semNormCRFAfterV1axons = StandardDeviation[Flatten[normCRFsAfterV1axonsYs, 1]] /
          Sqrt[Length[Flatten[normCRFsAfterV1axonsYs, 1]]];

In[•]:= (*********************************)

In[•]:= meanNormCRFBeforeLPaxons = Mean[Flatten[normCRFsBeforeLPaxonsYs, 1]];

In[•]:= semNormCRFBeforeLPaxons = StandardDeviation[Flatten[normCRFsBeforeLPaxonsYs, 1]] /
          Sqrt[Length[Flatten[normCRFsBeforeLPaxonsYs, 1]]];

In[•]:= (***)

In[•]:= meanNormCRFAfterLPaxons = Mean[Flatten[normCRFsAfterLPaxonsYs, 1]];

In[•]:= semNormCRFAfterLPaxons = StandardDeviation[Flatten[normCRFsAfterLPaxonsYs, 1]] /
          Sqrt[Length[Flatten[normCRFsAfterLPaxonsYs, 1]]];

In[•]:= (*********************************)

In[•]:= meanNormCRFBeforeLMaxons = Mean[Flatten[normCRFsBeforeLMaxonsYs, 1]];

In[•]:= semNormCRFBeforeLMaxons = StandardDeviation[Flatten[normCRFsBeforeLMaxonsYs, 1]] /
          Sqrt[Length[Flatten[normCRFsBeforeLMaxonsYs, 1]]];

In[•]:= (***)

In[•]:= meanNormCRFAfterLMaxons = Mean[Flatten[normCRFsAfterLMaxonsYs, 1]];

In[•]:= semNormCRFAfterLMaxons = StandardDeviation[Flatten[normCRFsAfterLMaxonsYs, 1]] /
          Sqrt[Length[Flatten[normCRFsAfterLMaxonsYs, 1]]];

In[•]:= (************************************************************)

In[•]:= contrastList = {10, 15, 22, 32, 46, 68, 100};

In[•]:= (***************************************)
```

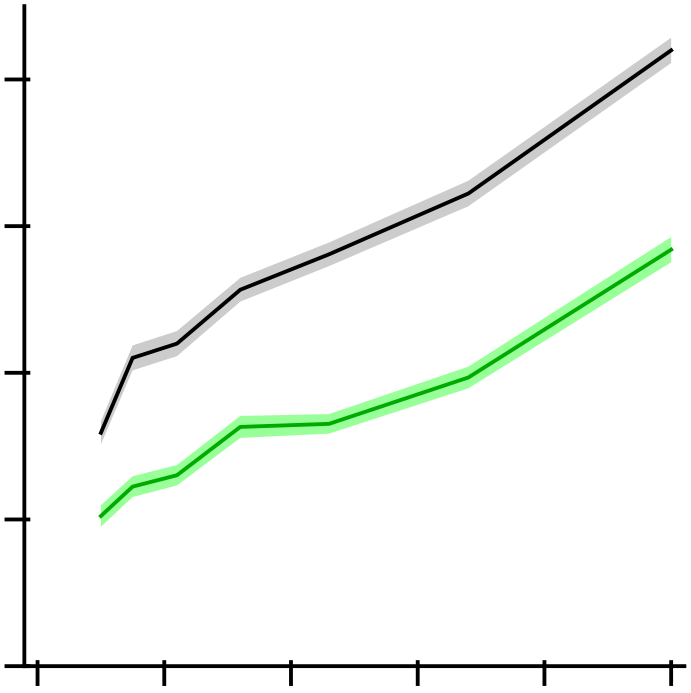
In[ ]:=
```
Show[
 ListLinePlot[{Partition[Riffle[contrastList, meanNormCRFBeforeControl], 2], Partition[
    Riffle[contrastList, (meanNormCRFBeforeControl + semNormCRFBeforeControl)], 2],
   Partition[Riffle[contrastList, (meanNormCRFBeforeControl - semNormCRFBeforeControl)],
    2]}, PlotRange → {0, 0.9}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Gray]}, 1 → {{3}, Directive[Opacity[0.4], Gray]}},
  PlotStyle → {{Black, Thick}, Transparent, Transparent}, Joined → True, FrameTicks →
   {{LinTicks[0, 1, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 100, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Frame → {{True, None}, {True, None}}, Axes → False,
  TicksStyle → Thick, FrameStyle → Thick],
 ListLinePlot[{Partition[Riffle[contrastList, meanNormCRFAfterControl], 2],
   Partition[Riffle[contrastList, (meanNormCRFAfterControl + semNormCRFAfterControl)], 2],
   Partition[Riffle[contrastList, (meanNormCRFAfterControl - semNormCRFAfterControl)],
    2]}, PlotRange → {0, 0.9}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Green]}, 1 → {{3}, Directive[Opacity[0.4], Green]}},
  PlotStyle → {{Darker@Green, Thick}, Transparent, Transparent}, Joined → True, FrameTicks →
   {{LinTicks[0, 1, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 100, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Frame → {{True, None}, {True, None}}, Axes → False, TicksStyle → Thick,
  FrameStyle → Thick], AspectRatio → 1,
 FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]]
```

Out[ ]=



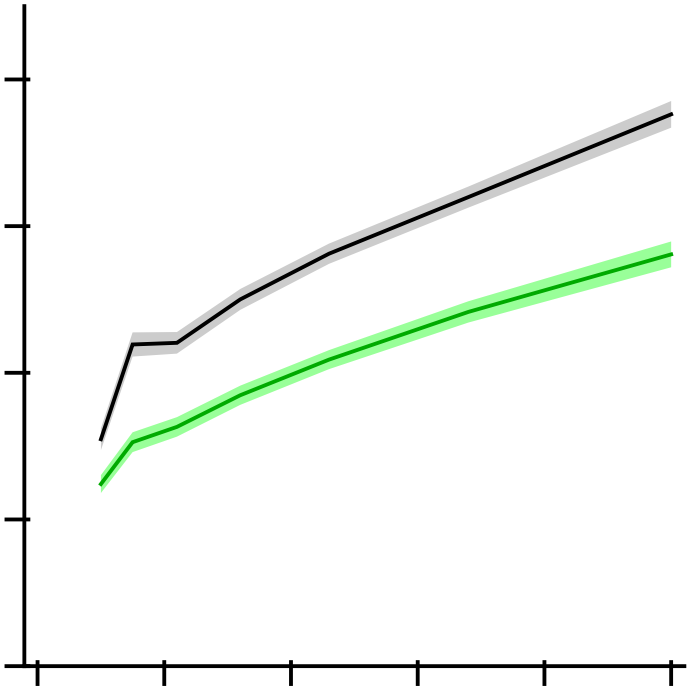
In[•]:=
```
Show[
 ListLinePlot[{Partition[Riffle[contrastList, meanNormCRFBeforeV1axons], 2], Partition[
    Riffle[contrastList, (meanNormCRFBeforeV1axons + semNormCRFBeforeV1axons)], 2],
   Partition[Riffle[contrastList, (meanNormCRFBeforeV1axons - semNormCRFBeforeV1axons)],
    2]}, PlotRange → {0, 0.9}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Gray]}, 1 → {{3}, Directive[Opacity[0.4], Gray]}},
  PlotStyle → {{Black, Thick}, Transparent, Transparent}, Joined → True, FrameTicks →
   {{LinTicks[0, 1, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 100, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Frame → {{True, None}, {True, None}}, Axes → False,
  TicksStyle → Thick, FrameStyle → Thick],
 ListLinePlot[{Partition[Riffle[contrastList, meanNormCRFAfterV1axons], 2],
   Partition[Riffle[contrastList, (meanNormCRFAfterV1axons + semNormCRFAfterV1axons)], 2],
   Partition[Riffle[contrastList, (meanNormCRFAfterV1axons - semNormCRFAfterV1axons)],
    2]}, PlotRange → {0, 0.9}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Green]}, 1 → {{3}, Directive[Opacity[0.4], Green]}},
  PlotStyle → {{Darker@Green, Thick}, Transparent, Transparent}, Joined → True, FrameTicks →
   {{LinTicks[0, 1, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 100, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Frame → {{True, None}, {True, None}}, Axes → False, TicksStyle → Thick,
  FrameStyle → Thick], AspectRatio → 1,
 FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]]
```

Out[•]=



In[ ]:=
```
Show[
 ListLinePlot[{Partition[Riffle[contrastList, meanNormCRFBeforeLPaxons], 2], Partition[
    Riffle[contrastList, (meanNormCRFBeforeLPaxons + semNormCRFBeforeLPaxons)], 2],
   Partition[Riffle[contrastList, (meanNormCRFBeforeLPaxons - semNormCRFBeforeLPaxons)],
    2]}, PlotRange → {0, 0.9}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Gray]}, 1 → {{3}, Directive[Opacity[0.4], Gray]}},
  PlotStyle → {{Black, Thick}, Transparent, Transparent}, Joined → True, FrameTicks →
   {{LinTicks[0, 1, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 100, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Frame → {{True, None}, {True, None}}, Axes → False,
  TicksStyle → Thick, FrameStyle → Thick],
 ListLinePlot[{Partition[Riffle[contrastList, meanNormCRFAfterLPaxons], 2],
   Partition[Riffle[contrastList, (meanNormCRFAfterLPaxons + semNormCRFAfterLPaxons)], 2],
   Partition[Riffle[contrastList, (meanNormCRFAfterLPaxons - semNormCRFAfterLPaxons)],
    2]}, PlotRange → {0, 0.9}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Green]}, 1 → {{3}, Directive[Opacity[0.4], Green]}},
  PlotStyle → {{Darker@Green, Thick}, Transparent, Transparent}, Joined → True, FrameTicks →
   {{LinTicks[0, 1, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 100, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Frame → {{True, None}, {True, None}}, Axes → False, TicksStyle → Thick,
  FrameStyle → Thick], AspectRatio → 1,
 FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]]
```

Out[ ]=



In[•]:=
```
Show[
 ListLinePlot[{Partition[Riffle[contrastList, meanNormCRFBeforeLMaxons], 2], Partition[
    Riffle[contrastList, (meanNormCRFBeforeLMaxons + semNormCRFBeforeLMaxons)], 2],
   Partition[Riffle[contrastList, (meanNormCRFBeforeLMaxons - semNormCRFBeforeLMaxons)],
    2]}, PlotRange → {0, 0.9}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Gray]}, 1 → {{3}, Directive[Opacity[0.4], Gray]}},
  PlotStyle → {{Black, Thick}, Transparent, Transparent}, Joined → True, FrameTicks →
   {{LinTicks[0, 1, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 100, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Frame → {{True, None}, {True, None}}, Axes → False,
  TicksStyle → Thick, FrameStyle → Thick],
 ListLinePlot[{Partition[Riffle[contrastList, meanNormCRFAfterLMaxons], 2],
   Partition[Riffle[contrastList, (meanNormCRFAfterLMaxons + semNormCRFAfterLMaxons)], 2],
   Partition[Riffle[contrastList, (meanNormCRFAfterLMaxons - semNormCRFAfterLMaxons)],
    2]}, PlotRange → {0, 0.9}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Green]}, 1 → {{3}, Directive[Opacity[0.4], Green]}},
  PlotStyle → {{Darker@Green, Thick}, Transparent, Transparent}, Joined → True, FrameTicks →
   {{LinTicks[0, 1, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 100, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Frame → {{True, None}, {True, None}}, Axes → False, TicksStyle → Thick,
  FrameStyle → Thick], AspectRatio → 1,
 FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]]
```

Out[•]=