5.2 PROJECT

THE THEORY OF THE STORK

It has been humorously stated that there are two theories concerning the origin of children: the Theory of Sexual Reproduction (ThoSR) and the Theory of the Stork (ThoS)[1]. Noticeably absent is the Theory of the Cabbage Patch, which, for whatever reason, has yet to gain traction. With respect to ThoS, it was observed that in the German state of Lower Saxony, between 1970 and 1985, the number of out-of-hospital births decreased while there was also a decline in recorded pairs of storks. Between 1985 and 1995, both of those numbers remained relatively unchanged. Meanwhile, in Brandenburg, the countryside around Berlin, the stork population showed a decline between 1990 and 1991, followed by a general increasing trend from 1991 to 1999. In the city of Berlin, out-of-hospital births showed the same trend. Below is a table with these numbers recorded, rounded to the nearest 10.

Year	Pairs of Storks (x)	Out-of-Hospital Births (y)
1990	970	900
1991	850	790
1992	980	780
1993	1210	890
1994	1280	960
1995	1270	1080
1996	1360	1070
1997	1120	1250
1998	1320	1130
1999	1370	1200

1. Plot the points on a graph with pairs of storks as the x-coordinate and out-of-hospital births as the y-coordinate.
2. Find the slope-intercept form of the equation for the line passing through the data points representing the lowest number of pairs of storks and the highest number of pairs of storks.
3. Find the slope-intercept form of the equation for the line passing through the data points representing the lowest number of out-of-hospital births and the highest number of out-of-hospital births.
4. Find a third slope-intercept form of a line passing through two data points of your own choosing that you think may yield a line that better "fits" the plotted points.
5. Using the equations for the lines you obtained in parts 2, 3, and 4, choose any x-value from the table and calculate the corresponding y-values. How does each y-value compare to the actual observed number of out-of-hospital births for that number of pairs of storks?
6. Sketch the three lines on the graph with the plotted data points. Which of the three lines would you consider the "best fit"?

1 Thomas Höfer, Hildegard Przyrembel, and Silvia Verleger, "New Evidence for the Theory of the Stork," Paediatric and Perinatal Epidemiology, Volume 18 (January 2004): 88–92.