What Do We Mean By Probability?

This is for group discussion: the intent is to discuss notions of probability (not the technicalities of election polling!).

Here is some text from a blog post discussing polling for the US elections:

> Democrats appear to be on the verge of wrapping up several more pickups of Republican-held seats -- *but their odds of finishing with 60 or more seats are becoming longer.*
>
> The good news for Democrats comes in several races that already leaned Democratic, and now appear to be more solidly so. Further polling in **Oregon** confirms that Jeff Merkley has established a lead there. Frankly, since much of the vote has come in from Oregon and <u>Republican turnout is depressed there</u>, *I think it's more likely that Merkley will win by double-digits* than Gordon Smith will hold on to his seat. In **North Carolina**, we have added polls from Research 2000, Elon, and CNN, all of which give Kay Hagan leads ranging from 5 to 9 points; the race remains competitive, but sits on the brink of "lean" and "likely" Democrat.
>
> - http://www.fivethirtyeight.com/2008/11/senate-projections-111.html

I have italicised two phrases, which explicitly discuss probability.

1. How do you understand the use of probability in the italicised phrases?
    1. In what sense are they uncertain?
    2. To what extent are the statements based on data, or on other things? And what other things?
2. Would it make sense to refer to probabilities of the events tomorrow (after the election)?
    1. What would change whether it made sense?

The text says that polls "give Kay Hagan leads ranging from 5 to 9 points".

3. What are the polls trying to measure?
    1. Why do the polls differ (i.e. where is the uncertainty coming from)?
    2. In what senses are the polls uncertain?
        1. are they measuring the same things?
        2. is what they measuring what they want to measure? (i.e. how people will vote in the election)
    3. How does this uncertainty compare with the uncertainty in the italicised phrases?