

'Probability' (pub. 16.10.15-17:51). Quote in M. Bergman & S. Paavola (Eds.), *The Commens Dictionary: Peirce's Terms in His Own Words. New Edition*. Retrieved from <http://www.commens.org/dictionary/entry/quote-note-notes-art-iii-r-2>.

Term: Probability

Quote: ...the kind of reasoning which creates likelihoods by virtue of observations may render a likelihood *practically* certain – as certain as that a stone let loose from the clutch will, under circumstances not obviously exceptional, fall to the ground – and this conclusion may be that under a certain general condition, easily verified, a certain actuality will be *probable*, that is to say, will come to pass once in so often in the long run. One such familiar conclusion, for example, is that a die thrown from a dice box will with a *probability* of one-third, that is, once in three times in the long run, turn up a number (either *tray* or *size*) that is divisible by three. But this can be affirmed with practical certainty only if by a “long run” be meant an endless series of trials, and (as just said) infinity divided by infinity gives of itself an entirely indefinite quotient. It is therefore necessary to define the phrase. I might give the definition with reference to the probability, p , where p is any vulgar fraction, and in reference to a generic condition, m , and a specific kind of event n . But I think the reader will follow me more readily, if in place of the letter, m (which in itself is but a certain letter, to which is attached a peculiar meaning, that of the fulfillment of some generic condition) I put instead the supposition that a die is thrown from a dice box; and this special supposition will be as readily understood by the reader to be replaceable by any other general condition along with a simultaneous replacement of the *event*, that a number divisible by three is turned up, and at the same time with the replacement of one third by whatever other vulgar fraction may be called for when some different example of a probability is before us. I am, then, to define the meanings of the statement that the *probability*, that if a die be thrown from a dice box it will turn up a number divisible by three, is one-third. The statement means that the die has a certain “would-be”; and to say that a die has a “would-be” is to say that it has a property, quite analogous to any *habit* that a man might have. Only the “would-be” of the die is presumably as much simpler and more definite than the man’s habit as the die’s homogeneous composition and cubical shape is simpler than the nature of the man’s nervous system and soul; and just as it would be necessary, in order to define a man’s habit, to describe how it would lead him to behave and upon what sort of occasion – albeit this statement would by no means imply that the habit *consists* in that action – so to define the die’s “would-be,” it is necessary to say how it would lead the die to behave on an occasion that would bring out the full consequence of the “would-be”; and this

statement will not of itself imply that the “would-be” of the die *consists* in such behavior.

Now in order that the full effect of the die’s “would-be” may find expression, it is necessary that the die should undergo an endless series of throws from the dice box, the result of no throw having the slightest influence upon the result of any other throw, or, as we express it, the throws must be *independent* each of every other.

Source: Peirce, C. S. (1910). *Note (Notes on Art. III) [R]*. MS [R] 703.

References: CP 2.664-5

Date of 1910

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