Parity Encyclopedia Article

Parity

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Parity is a technique for determining whether **data** has been lost or overwritten during a move. It can be used within a single computer when moving bits of data between storage locations, and it can be used between computers when data is transmitted. Parity checking is the most basic form of error detection in communications.

When data is moved, it is moved in groups of bits. An extra binary **bit**, called a parity bit, is added to each group of bits that is moved. This bit does not become part of the data; it is used only for the purpose of identifying whether the bits being moved arrived successfully. Parity bits can be either odd or even, depending on the systems involved. When data is transmitted between computers, the sending system and receiving system must agree to use parity checking and whether to use even parity or odd parity. Even parity is more commonly used.

When even parity is used, each group of bits must total an even number. To accomplish this, the parity bit is set to zero or one, depending on the total of the bits in the group (before the parity bit is added). If the total number of bits is odd, the parity bit is set to one; if the total number of bits is even, the parity bit is set to zero. This results in each group of bits totaling an even number.

Parity checking is the calculation at the receiving end of the transmission to ensure that the total number of bits in the group totals an even number. If the number is odd, there has been a transmission error. The receiving system can either request a retransmission or generate an error **message**.