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# Parses an array to see classify it as a matrix or an ensemble of matrices.
.arrayClass <- function(array){
  # Sample an element from the array and get its class
  elem <- array[[1]]
  types <- class(elem)
  # Classify it by analyzing the element class
  if("numeric" %in% types || "complex" %in% types){
    return("matrix")
  }
  else if("matrix" %in% types){
    return("ensemble")
  }
}

```

```

# Sort an array of numbers by their norm (written for eigenvalue sorting)
.sortValues <- function(vals, norm_order){
  values <- data.frame(value = vals)
  # If asked to sort by norms, arrange by norm and return
  if(norm_order){
    values$norm <- abs(values$value)
    values <- values %>% arrange(desc(norm))
    # Return the norm-sorted values
    values$value
  }
  # Otherwise, sort by sign and return
  else{ sort(vals, decreasing = TRUE) }
}

```