

Pelham, B. W., Sumarta, T. T., & Myaskovsky, L.  
The Easy Path from Many to Much: The Numerosity Heuristic  
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People are essentially sensitive to numerosity as a cue for judging quantity or probability. That is, people sometimes judge amount or likelihood on the basis of the number of units into which a stimulus is divided without fully considering other important variables (e.g., the size of the units). People appear to be especially likely to make use of this "numerosity heuristic" when their cognitive resources are taxed. Consistent with this idea, five experiments showed that people are especially likely to overinfer quantity or probability from numerosity (a) when they are asked to make inherently difficult judgments, (b) when they are asked to render judgments while performing a concurrent task, and (c) when they are forced to make especially rapid judgments. In addition to their implications for the numerosity heuristic, the broad implications of these findings for the study of judgment are discussed.

DO PEOPLE OVERINFER QUANTITY FROM NUMEROSITY?

WHY DO PEOPLE OVERINFER QUANTITY FROM NUMEROSITY?

WHEN DO PEOPLE OVERINFER QUANTITY FROM NUMEROSITY?

#### EXPERIMENT 1

##### Method

Participants

Materials and Procedure

##### Results and Discussion

#### EXPERIMENT 2

##### Method

Overview

Participants

Procedure

##### Results and Discussion

Evidence of Anchoring and Adjustment

Evidence of the Moderating Role of Cognitive Load

## EXPERIMENT 3

### Method

Overview

Participants

Procedure

Presentation Rate Manipulation

### Results and Discussion

Evidence of the Use of numerosity Cues

## EXPERIMENT 4

### Method

Overview

Participants

Materials and Procedure

### Results and Discussion

## ALTERNATIVE EXPLANATIONS for EXPERIMENT 4

## EXPERIMENT 5

### Method

Overview

Participants

Procedure

Duration of Evaluative Processing

Dependent Measures

### Results and Discussion

## GENERAL DISCUSSION

The Effortlessness of Numerosity

Numerosity and Motivation

Limitations on Numerosity

## CONCLUSION

About 5000 years ago, a group of Sumerian traders refined the token-bullae system into a pictographic accounting system designed to help them keep track of their economic transactions. Eventually, this revolutionary system developed not only into a formal number system but also into what some believe was the first written language (Green, 1981; Powell, 1081; Schmandt-Besserat, 1981). Whether these ambitious traders were formalizing an intuition shared by virtually all vertebrates or establishing a uniquely human tradition, it is clear that their accounting system has become woven indelibly into human thought. For precisely this reason, the numerosity of a stimulus may sometimes compel people to ignore other equally important cues for inferring quantity. At the same time, a potentially unique feature of human thought is the capacity to adjust our overly simplistic intuitions by engaging in effortful, analytical reasoning. As researchers continue to explore the parameters of human thought and judgment, it is hoped that they will examine both effortless and effortful forms of accounting and thereby help to delineate both the systematic biases and the systematic corrections that characterize human thinking.