

Review of Association Grammar

Associations can be classified by form or content:

Form: Two group comparison or two variable co-variation.

Content: Ordinal or arithmetic connection.

Ordinal association (non-arithmetic): does not include the test, base or the arithmetic connection.

Comparison: Men are taller than women.

Co-variation: As height increases, weight increases.

An **arithmetic association** must include some related numerical values.

A **good** arithmetic association (include just the arithmetic connection):

Comparison: The mean height of men is 5" taller than that of women.

Co-variation: As height increases by 1 inch, weight increases by 5 pounds.

An **OK** arithmetic association includes the arithmetic connection and the test or base values.

Comparison: The S&P500 was up by 500 points to 24,500.

Co-variation: As height increases by 1 inch to 60", weight increases by 5 pounds to 170#.

A **crude** or **implicit** association includes just the test and base values being compared.

Comparison: The mean height of men is 59" (women 54")

Co-variation: As height increases from 69" to 70", weight increases from 160# to 165#.

A **Too-Much** association includes all the values: the arithmetic connection and the test and base values.

Comparison: The mean height of men (59") is 5" more than that of women (54").

Co-variation: As height increases by 1" from 69" to 70", weight increases by 5# from 160# to 165#.

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Arithmetic comparisons are of four kinds:

Simple difference:	6 is 2 more than 4.	6% is 2 percentage points more than 4%
Simple ratio	6 is 3 times as much as 2.	6% is 3 times as much as 2%
Percent difference	6 is 20% more than 5.	6% is 20% more than 5%.
Times difference.	6 is 2 times more than 2.	6% is 2 times more than 2%.

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Likely is not a synonym for common or frequent.

Use common or frequent (do not use "likely" or "prevalent") in comparing counts:

The # of abortions was greater among young women than among older women

Abortions were more **common (frequent)** among young women than among older women

Only use "likely" or "prevalent" (do not use common or frequent) in comparing rates or percentages:

Abortions were more likely among young women than among older women.

Specific Comparison Grammar

Comparing Measures

Good comparison:

Comparing ranks. France ranked higher than the US in the amount of nuclear-produced electricity.

Comparing percentiles: The Univ of Mn raised the qualification for a Business PhD by five percentiles.

Comparing measures: Among married couples, white families earned \$8,000 more than black families.

COMPARING COUNTS

Using common or frequent:

 In the Navy, men are 25 times as common (frequent) as women.

Using "number":

 In the Navy, the number of men is 25 times as much as the number of women.

 In the Navy, men outnumber women by a factor of 25.

 In the Navy, men are 400,000 more than women – by number.

COMPARING CHANGES: Velocity and Acceleration

Velocity:

The population is increasing. Growing or getting larger.

The population is decreasing. Shrinking or getting smaller.

Velocity and Change in Velocity (Acceleration):

The population is increasing at an increasing rate. Growing (getting larger) faster than before.

The population is increasing at a decreasing rate. Growing (getting larger) slower than before.

The population is decreasing at an increasing rate. Shrinking (getting smaller) faster than before.

The population is decreasing at a decreasing rate. Shrinking (getting smaller) slower than before.