

Asiatic Echoes

The Identification of Ancient Chinese Pictograms in pre-Columbian North American Rock Writing



**Compendium of Statistical Comparison Charts
1-202**

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**Asiatic Echoes -
The Identification of Ancient Chinese Pictograms in pre-Columbian North
American Rock Writing**

Compendium of Statistical Comparison Charts # 1-202

**By John A. Ruskamp, Jr.
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INDEX OF STATISTICAL CHARTS

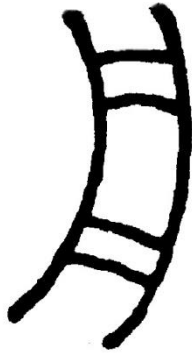
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Chart 1

Chinese Zhōu (boat) Pictogram vs. El Morro Petroglyph



Zhōu pictogram
Image: Bernhard Karlgren



El Morro glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>El Morro glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
Horizontal #1 (bow)	Horizontal #1 (bow)	Yes
Horizontal #2 (bow thwart)	Horizontal #2 (bow thwart)	Yes
Horizontal #3 (midship thwart)	Horizontal #3 (midship thwart)	Yes
Horizontal #4 (stern)	Horizontal #4 (stern)	Yes
None	Wavy line (water)	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>El Morro glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
Junction - horizontal #1 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
Junction - horizontal #1 & vertical #2	Junction - horizontal #1 & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #3 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #3 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	Junction - horizontal #4 & vertical #1	Yes
Junction - horizontal #4 & vertical #2	Junction - horizontal #4 & vertical #2	Yes
None	Wavy line - connection vertical #2	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the El Morro petroglyph

Total number of shared features M11 = 15

Total number of features N = 17

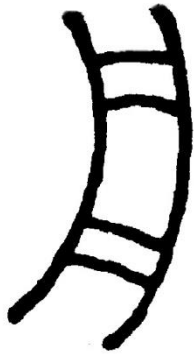
For Index of Similarity calculation: M10 = 0; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{0 + 2 + 15} = \frac{15}{17} = 0.8824$$

For N = 17 and J = 0.8824; P < 0.001

Chart 2

Chinese Zhōu (boat) Pictogram vs. Lagomarsino Petroglyph



Zhōu pictogram
Image: Bernhard Karlgren



Lagomarsino glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Lagomarsino glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
None	Horizontal #1 (bow)	No
Horizontal #1 (bow thwart)	Horizontal #2 (bow thwart)	Yes
Horizontal #2 (midship thwart)	Horizontal #3 (midship thwart)	Yes
Horizontal #3 (stern thwart)	Horizontal #4 (stern thwart)	Yes
Horizontal #4 (stern)	Horizontal #5 (stern)	Yes
None	Two wavy lines (water)	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Lagomarsino glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
None	Connection - horizontal #1 & vertical #1	No
None	Connection - horizontal #1 & vertical #2	No
Junction - horizontal #1 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #1 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #3 & vertical #2	Yes
Junction - horizontal #3 & vertical #1	Junction - horizontal #4 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #4 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	Junction - horizontal #5 & vertical #1	Yes
Junction - horizontal #4 & vertical #2	Junction - horizontal #5 & vertical #2	Yes
None	Connection - two wavy lines & vertical #1	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Lagomarsino petroglyph

Total number of shared features M11 = 15

Total number of features N = 20

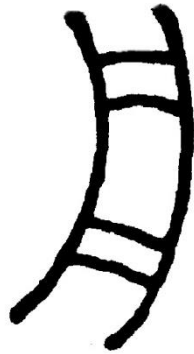
For Index of Similarity calculation: M10 = 0; M01 = 5

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{0 + 5 + 15} = \frac{15}{20} = 0.7500$$

For N = 20 and J = 0.7500; P < 0.001

Chart 3

Chinese Zhōu (boat) Pictogram vs. Piedras Marcadas Canyon Petroglyph



Zhōu pictogram
Image: Bernhard Karlgren



Piedras Marcadas Canyon glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Piedras Marcadas Canyon glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
Horizontal #1 (bow)	Horizontal #1 (bow)	Yes
Horizontal #2 (bow thwart)	Horizontal #2 (bow thwart)	Yes
Horizontal #3 (midship thwart)	Horizontal #3 (midship thwart)	Yes
Horizontal #4 (stern)	Horizontal #4 (stern)	Yes
None	Wavy line (water)	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Piedras Marcadas Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
Junction - horizontal #1 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
Junction - horizontal #1 & vertical #2	Junction - horizontal #1 & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #3 & vertical #1	Intersection - horizontal #3 & vertical #1	No
Junction - horizontal #3 & vertical #2	Junction - horizontal #3 & junction vertical #2	Yes
Junction - horizontal #4 & vertical #1	Intersection - horizontal #4 & vertical #1	No
Junction - horizontal #4 & vertical #2	Junction - horizontal #4 & junction vertical #2	Yes
None	Connection - wavy line & vertical #2	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Piedras Marcadas petroglyph

Total number of shared features M11 = 13

Total number of features N = 17

For Index of Similarity calculation: M10 = 2; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{2 + 2 + 13} = \frac{13}{17} = 0.7647$$

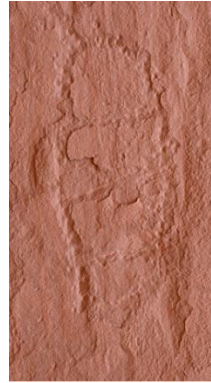
For N = 17 and J = 0.7647; P = 0.001

Chart 4

Chinese Zhōu (boat) Pictogram vs. Kachina Bridge Petroglyph



Zhōu pictogram
Image: Bernhard Karlgren



Kachina Bridge glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Kachina Bridge glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
None	Arc down (bow)	No
Horizontal #1 (bow thwart)	Horizontal #1 (bow thwart)	Yes
Horizontal #2 (midship thwart)	Horizontal #2 (midship thwart)	Yes
Horizontal #3 (stern thwart)	Horizontal #3 (stern thwart)	Yes
Horizontal #4 (stern)	Horizontal #4 (stern)	Yes
None	Wavy lines (water)	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Kachina Bridge glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
None	Connection - arc down & vertical #1	No
None	Connection - arc down & vertical #2	No
Junction - horizontal #1 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
Junction - horizontal #1 & vertical #2	Junction - horizontal #1 & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #3 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #3 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	Junction - horizontal #4 & vertical #1	Yes
Junction - horizontal #4 & vertical #2	Junction - horizontal #4 & vertical #2	Yes
None	Connection - wavy line & arc down	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Kachina Bridge petroglyph

Total number of shared features M11 = 15

Total number of features N = 20

For Index of Similarity calculation:

M10 = 0;

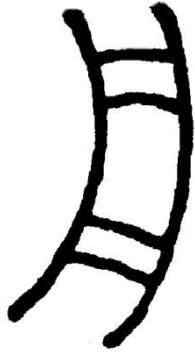
M01 = 5

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{0 + 5 + 15} = \frac{15}{20} = 0.7500$$

For N = 20 and J = 0.7500; P < 0.001

Chart 5

Chinese Zhōu (boat) Pictogram vs. Lyman Lake Petroglyph



Zhōu pictogram
Image: Bernhard Karlgren



Lyman Lake glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Lyman Lake glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
None	Arc down (bow)	No
Horizontal #1 (bow thwart)	Horizontal #1 (bow thwart)	Yes
Horizontal #2 (midship thwart)	Horizontal #2 (midship thwart)	Yes
Horizontal #3 (stern thwart)	Horizontal #3 (stern thwart)	Yes
Horizontal #4 (stern)	Horizontal #4 (stern)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Lyman Lake glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
None	Connection - arc down & vertical #1	No
None	Connection - arc down & vertical #2	No
Junction - horizontal #1 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
Junction - horizontal #1 & vertical #2	Junction - horizontal #1 & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #3 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #3 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	Junction - horizontal #4 & vertical #1	Yes
Junction - horizontal #4 & vertical #2	Junction - horizontal #4 & vertical #2	Yes

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Lyman Lake petroglyph

Total number of shared features M11 = 15

Total number of features N = 18

For Index of Similarity calculation: M10 = 0; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{0 + 3 + 15} = \frac{15}{18} = 0.8333$$

For N=18 and J=0.8333; P < 0.001

Chart 6

Chinese Zhōu (boat) Pictogram vs. Arlington, Arizona Petroglyph



Zhōu pictogram
Image: Bernhard Karlgren



Arlington glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Arlington glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
None	Arc down (bow)	No
Horizontal #1 (bow thwart)	Horizontal #1 (bow thwart)	Yes
Horizontal #2 (midship thwart)	Horizontal #2 (midship thwart)	Yes
Horizontal #3 (stern thwart)	Horizontal #3 (stern thwart)	Yes
Horizontal #4 (stern)	Horizontal #4 (stern)	Yes
None	Wavy line (water)	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Arlington glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
None	Connection - arc down & vertical #1	No
None	Connection - arc down & vertical #2	No
Junction - horizontal #1 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
Junction - horizontal #1 & vertical #2	Junction - horizontal #1 & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #3 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #3 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	Junction - horizontal #4 & vertical #1	Yes
Junction - horizontal #4 & vertical #2	Junction - horizontal #4 & vertical #2	Yes
None	Connection - wavy line & vertical #2	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Arlington, Arizona petroglyph

Total number of shared features M11 = 15

Total number of features N = 20

For Index of Similarity calculation: M10 = 0; M01 = 5

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{0 + 5 + 15} = \frac{15}{20} = 0.7500$$

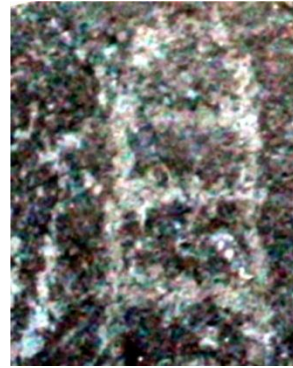
For N = 20 and J = 0.7500; P < 0.001

Chart 7

Chinese Zhōu (boat) Pictogram vs. Little Lake Petroglyph



Zhōu pictogram
Image: Richard Sears



Little Lake glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Little Lake glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
Horizontal #1 (bow)	Arc down (bow)	No
Horizontal #2 (bow thwart)	Horizontal #1 (bow thwart)	Yes
Horizontal #3 (midship thwart)	Horizontal #2 (midship thwart)	Yes
Horizontal #4 (stern)	Horizontal #3 (stern)	Yes
Wavy line (water)	Wavy line (water)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Little Lake glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
None	Connection - arc down & vertical #1	No
Connection - horizontal #1 & vertical #2	Connection - arc down & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
None	Junction - horizontal #1 & vertical #2	No
Junction - horizontal #3 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
None	Junction - horizontal #3 & vertical #2	No
Connection - wavy line & horizontal #1	Junction - wavy line & arc down	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Little Lake petroglyph

Total number of shared features $M_{11} = 12$

Total number of features $N = 17$

For Index of Similarity calculation:

$M_{10} = 2;$

$M_{01} = 3$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{12}{2 + 3 + 12} = \frac{12}{17} = 0.7059$$

For $N = 17$ and $J = 0.7059;$ $P < 0.01$

Chart 8

Chinese Zhōu (boat) Pictogram vs. Little Colorado River Petroglyph



Zhōu pictogram
Image: Richard Sears



Little Colorado River glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Little Colorado River glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
Horizontal #1 (bow)	Arc down (bow)	No
Horizontal #2 (bow thwart)	Horizontal #1 (bow thwart)	Yes
Horizontal #3 (midship thwart)	Horizontal #2 (midship thwart)	Yes
Horizontal #4 (stern)	Horizontal #3 (stern)	Yes
Wavy line (water)	Wavy line (water)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Little Colorado River glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
None	Connection - arc down & vertical #1	No
Connection - horizontal #1 & vertical #2	Connection - arc down & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
None	Junction - horizontal #1 & vertical #2	No
Junction - horizontal #3 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
None	Junction - horizontal #3 & vertical #2	No
Connection - wavy line & horizontal #1	Connection - wavy line & Vertical #2	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Little Colorado River petroglyph

Total number of shared features M11 = 12

Total number of features N = 17

For Index of Similarity calculation: M10 = 2; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{12}{2 + 3 + 12} = \frac{12}{17} = 0.7059$$

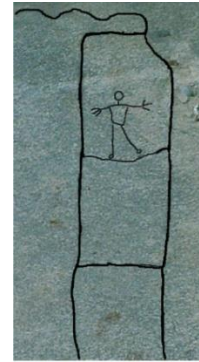
For N = 17 and J = 0.7059; P < 0.01

Chart 9

Chinese Zhōu (boat) Pictogram vs. Petroglyphs Provincial Park Petroglyph



Zhōu pictogram
Image: Richard Sears



Petroglyphs Provincial Park glyph
(trace lines added)

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Petroglyphs Provincial Park glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
Horizontal #1 (bow)	Horizontal #1 (bow)	Yes
Horizontal #2 (bow thwart)	None	No
Horizontal #3 (midship thwart)	Horizontal #2 (midship thwart)	Yes
Horizontal #4 (stern)	Horizontal #3 (stern)	Yes
Wavy line (water)	Wavy line (water)	Yes
None	Anthropomorph	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Petroglyphs Provincial Park glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
None	Connection - horizontal #1 & vertical #1	No
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
None	Junction - horizontal #2 & vertical #2	No
Junction - horizontal #3 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #3 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	None	No
Connection - wavy line & horizontal #1	Connection - wavy line & horizontal #1	Yes

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Petroglyphs Provincial Park petroglyph

Total number of shared features M11 = 12

Total number of features N = 17

For Index of Similarity calculation: M10 = 2; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{12}{2 + 3 + 12} = \frac{12}{17} = 0.7059$$

For N = 17 and J = 0.7059; P < 0.01

Chart 10

Chinese Zhōu (boat) Pictogram vs. Anasazi Ridge Petroglyph



Zhōu pictogram
Image: Richard Sears



Anasazi Ridge glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Anasazi Ridge glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
Horizontal #1 (bow)	Arc down (bow)	No
Horizontal #2 (bow thwart)	Horizontal #1 (bow thwart)	Yes
Horizontal #3 (midship thwart)	Horizontal #2 (midship thwart)	Yes
Horizontal #4 (stern)	Horizontal #3 (stern)	Yes
Wavy line (water)	Wavy line (water)	Yes
None	Five diagonal line cluster	No
None	Anthropomorph	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Anasazi Ridge glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
None	Connection - arc down & vertical #1	No
Connection - horizontal #1 & vertical #2	Connection - arc down & vertical #2	Yes
Junction - horizontal #2 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
None	Junction - horizontal #1 & vertical #2	No
Junction - horizontal #3 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #3 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #4 & vertical #1	Junction - horizontal #3 & vertical #1	Yes
None	Junction - horizontal #3 & vertical #2	No
Connection - wavy line & horizontal #1	Junction - wavy line & vertical #2	No
None	Placement - five diagonal line cluster... within midsection	No
None	Placement - anthropomorph within bottom section	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Anasazi Ridge petroglyph

Total number of shared features M11 = 12

Total number of features N = 21

For Index of Similarity calculation:

M10 = 2;

M01 = 7

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{12}{2 + 7 + 12} = \frac{12}{21} = 0.5714$$

For N = 21 and J = 0.5714; P = 0.05

Chart 11

Chinese Zhōu (boat) Pictogram vs. Nine Mile Canyon Petroglyph



Zhōu pictogram
Image: Frank Chalfant



Nine Mile Canyon glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Nine Mile Canyon glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical #1 (left hull + strake)	Vertical #1 (left hull + strake)	Yes
Vertical #2 (right hull + strake)	Vertical #2 (right hull + strake)	Yes
Horizontal #1 (bow)	Arc down (bow)	No
Horizontal #2 (midship thwart-extended)	Horizontal (midship thwart-extended)	Yes
Diagonal up (above horizontal #1)	Dot (above arc down)	No
Diagonal down #1 (within top box)	Five geometric sub-divisions (within top box)	No
Diagonal down #2 (within bottom box)	Anthropomorph (within bottom box)	No
Diagonal down #3 (right hook / stern)	Arc up (stern)	Yes
Water line (vertical left extension)	3 water lines (between side strakes)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Nine Mile Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical #1 & vertical #2	Parallel - vertical #1 & vertical #2	Yes
Connection - horizontal #1 & vertical #1	Connection - arc down & vertical #1	Yes
Connection - horizontal #1 & vertical #2	Connection - arc down & vertical #2	Yes
Intersection - horizontal #2 & vertical #1	Intersection - horizontal & vertical #1	Yes
Intersection - horizontal #2 & vertical #2	Intersection - horizontal & vertical #2	Yes
Placement - diagonal up above horizontal #1	Placement - dot, circles and lines above arc down	Yes
Placement - diagonal down #1 in top box	Placement - five geometric sub-divisions in top box	Yes
Placement - diagonal down #2 in bottom box	Placement - anthropomorph in bottom box	Yes
Connection - diagonal down #3 & vertical	None	No
None	Intersection - arc up & vertical	No
None	Intersection - arc up & vertical	No
Water line - connection vertical left	3 water lines - between verticals	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Nine Mile Canyon petroglyph

Total number of shared features M11 = 13

Total number of features N = 21

For Index of Similarity calculation: M10 = 6; M01 = 2

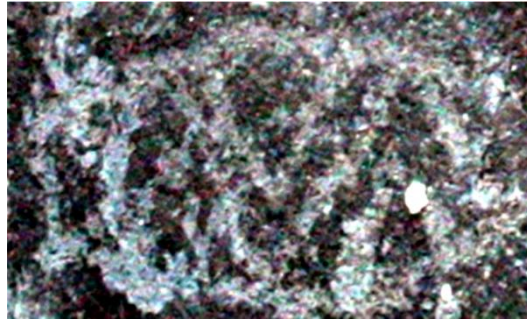
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{6 + 2 + 13} = \frac{13}{21} = 0.6190$$

For N = 21 and J = 0.6190; P = 0.01

Chart 13 Chinese Yuān (pond) Pictogram vs. Little Lake Petroglyph



Yuān pictogram
Image: Frank Chalfant



Little Lake glyph

Part 1. Comparison of line strokes

<u>Yuān pictogram line strokes</u>	<u>Little Lake glyph line strokes</u>	<u>Shared Feature</u>
Wavy line #1 (top)	Wavy line #1 (top)	Yes
Wavy line #2 (middle)	Wavy line #2 (middle)	Yes
Wavy line #3 (bottom)	Wavy line #3 (bottom)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Vertical #1 (left)	Vertical #1 (top)	Yes
Vertical #2 (right)	Vertical #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Yuān pictogram line stroke relations</u>	<u>Little Lake glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - wavy line #1 & in phase ... with wavy line #2	Parallel - wavy line #1 & in phase ... with wavy line #2	Yes
Parallel - wavy line #2 & in phase ... with wavy line #3	Parallel - wavy line #2 & in phase ... with wavy line #3	Yes
Connection - horizontal #1 & vertical #1	Connection - horizontal #1 & vertical #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - horizontal #2 & vertical #1	Connection - horizontal #2 & vertical #1	Yes
Connection - horizontal #2 & vertical #2	Connection - horizontal #2 & vertical #2	Yes
Placement - wavy lines within cartouche	Placement - wavy lines within cartouche	Yes

Calculation of Jaccard's Index for the comparison of the Yuān pictogram with the Little Lake petroglyph

Total number of shared features M11 = 14

Total number of features N = 14

For Index of Similarity calculation:

M10 = 0;

M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{14}{0 + 0 + 14} = \frac{14}{14} = 1.0000$$

For N = 14 and J = 1.0000; P < 0.001

Chart 14

Chinese Mù (tree) Pictogram vs. Actual Oracle-bone Script Mù



Mù pictogram
Image: Frank Chalfant



Oracle-bone script Mù

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes and analogous tree descriptors</u>	<u>Oracle-bone script Mù line strokes and analogous tree descriptors</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Curve-up #1 (left branch)	Curve-up #1 (left branch)	Yes
Curve-up #2 (right branch)	Curve-up #2 (right branch)	Yes
Diagonal up (left root)	Diagonal up (left root)	Yes
Diagonal down (right root)	Diagonal down (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Oracle-bone Mù script line stroke relations</u>	<u>Shared Relation</u>
Junction - curve-up #1 & vertical	Junction - curve-up #1 & vertical	Yes
Junction - curve-up #2 & vertical	Junction - curve-up #2 & vertical	Yes
Junction - diagonal up & vertical	Junction - diagonal up & vertical	Yes
Junction - diagonal down & vertical	Junction - diagonal down & vertical	Yes

Calculation of Jaccard's Index for the comparison of the oracle-bone Mù pictogram with the oracle-bone script Mù symbol

Total number of shared features $M_{11} = 9$

Total number of features $N = 9$

For Index of Similarity calculation: $M_{10} = 0;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

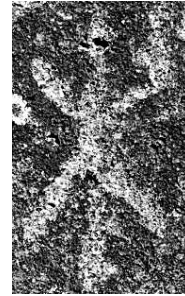
For $N = 9$ and $J = 1.0000;$ $P < 0.001$

Chart 15

Chinese Mù (tree) Pictogram vs. Red Canyon Petroglyph



Mù pictogram
Image: Frank Chalfant



Red Canyon glyph

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes and analogous tree descriptors</u>	<u>Red Canyon glyph line strokes and analogous tree descriptors</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Curve-up #1 (left branch)	Diagonal up #1 (left branch)	No
Curve-up #2 (right branch)	Curve-up (right branch)	Yes
Diagonal up (left root)	Diagonal up #2 (left root)	Yes
Diagonal down (right root)	Diagonal down (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Red Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - curve-up #1 & vertical	Junction - diagonal up #1 & vertical	Yes
Junction - curve-up #2 & vertical	Junction - curve-up & vertical	Yes
Junction - diagonal up & vertical	Junction - diagonal up #2 & vertical	Yes
Junction - diagonal down & vertical	Junction - diagonal down & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Mù pictogram with the Red Canyon petroglyph

Total number of shared features $M11 = 8$

Total number of features $N = 9$

For Index of Similarity calculation:

$M10 = 1;$

$M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{1 + 0 + 8} = \frac{8}{9} = 0.8889$$

For $N = 9$ and $J = 0.8889;$

$P = 0.001$

Chart 16 Chinese Mù (tree) Pictogram vs. Red Canyon Petroglyph



Mù pictogram
Image: Frank Chalfant



Red Canyon glyph

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes and analogous tree descriptors</u>	<u>Red Canyon glyph line strokes and analogous tree descriptors</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Curve-up #1 (left branch)	Curve-up #1 (left branch)	Yes
Curve-up #2 (right branch)	Curve-up #2 (right branch)	Yes
Curve-down #1 (left root)	Curve-down (left root)	Yes
Curve-down #2 (right root)	Diagonal down (right root)	No

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Red Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - curve-up #1 & vertical	Junction - curve-up #1 & vertical	Yes
Junction - curve-up #2 & vertical	Junction - curve-up #2 & vertical	Yes
Junction - curve-down #1 & vertical	Junction - curve-down & vertical	Yes
Junction - curve-down #2 & vertical	Junction - diagonal down & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Mù pictogram with the Red Canyon petroglyph

Total number of shared features $M11 = 8$

Total number of features $N = 9$

For Index of Similarity calculation: $M10 = 1;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{1 + 0 + 8} = \frac{8}{9} = 0.8889$$

For $N = 9$ and $J = 0.8889;$ $P = 0.001$

Chart 17 Chinese Mù (tree) Pictogram vs. Chaco Canyon Petroglyph



Mù pictogram
Image: Richard Sears



Chaco Canyon glyph

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes and analogous tree descriptors</u>	<u>Chaco Canyon glyph line strokes and analogous tree descriptors</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Diagonal down #1 (left branch)	Diagonal down #1 (left branch)	Yes
Curve-up (right branch)	Curve-up (right branch)	Yes
Diagonal up (left root)	Diagonal up (left root)	Yes
Diagonal down #2 (right root)	Diagonal down #2 (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Chaco Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - diagonal down #1 & vertical	Junction - diagonal down #1 & vertical	Yes
Junction - curve-up & vertical	Junction - curve-up & vertical	Yes
Junction - diagonal up & vertical	Junction - diagonal up & vertical	Yes
Junction - diagonal down #2 & vertical	Junction - diagonal down #2 & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Mù pictogram with the Chaco Canyon petroglyph

Total number of shared features M11 = 9

Total number of features N = 9

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For N = 9 and J = 1.0000; P < 0.001

Chart 18

Chinese Wèi (large tree) Pictogram vs. Painted Rocks Petroglyph



Wèi pictogram
Image: Richard Sears



Painted Rocks glyph

Part 1. Comparison of line strokes

<u>Wèi pictogram line strokes and analogous tree descriptors</u>	<u>Painted Rocks glyph line strokes and analogous tree descriptors</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Curve-up left #1 (top branch)	Curve-up left #1 (top branch)	Yes
Curve-up right #1 (top branch)	Curve-up right #1 (top branch)	Yes
Curve-up left #2 (lower branch)	Curve-up left #2 (lower branch)	Yes
Curve-up right #2 (lower branch)	Curve-up right #2 (lower branch)	Yes
Diagonal up (left root)	Diagonal up (left root)	Yes
Diagonal down (right root)	Diagonal down (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Wèi pictogram line stroke relations</u>	<u>Painted Rocks glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - curve-up left #1 & vertical	Junction - curve-up left #1 & vertical	Yes
Junction - curve-up right #1 & vertical	Junction - curve-up right #1 & vertical	Yes
Junction - curve-up left #2 & vertical	Junction - curve-up left #2 & vertical	Yes
Junction - curve-up right #2 & vertical	Junction - curve-up right #2 & vertical	Yes
Junction - diagonal up & vertical	Junction - diagonal up & vertical	Yes
Junction - diagonal down & vertical	Junction - diagonal down & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Wèi pictogram with the Painted Rocks petroglyph

Total number of shared features M11 = 13

Total number of features N = 13

For Index of Similarity calculation:

M10 = 0;

M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{0 + 0 + 13} = \frac{13}{13} = 1.0000$$

For N = 13 and J = 1.0000; P < 0.001

Chart 19 Chinese Guǒ (fruit tree) Pictogram vs. Lyman Lake Petroglyph



Guǒ pictogram
Image: Richard Sears



Lyman Lake glyph

Part 1. Comparison of line strokes

**Guǒ Pictogram line strokes
and analogous tree descriptors**

Vertical (central trunk)
Diagonal down #1 (left branch)
Curve-up (right branch)
Circle (fruit)
Diagonal up (left root)
Diagonal down #2 (right root)

**Lyman Lake glyph line strokes
and analogous tree descriptors**

Vertical (central trunk)
Curve-up (left branch)
None
Circle (fruit)
Diagonal up (left root)
Diagonal down (right root)

Shared Relation

Yes
No
No
Yes
Yes
Yes

Part 2. Comparison of line stroke touch relations

Guǒ pictogram line stroke relations

Junction - diagonal down #1 & circle
Junction - curve-up & vertical
Connection - circle & vertical
Junction - diagonal up & vertical
Junction - diagonal down #2 & vertical

Lyman Lake glyph line stroke relations

Junction - curve-up & circle
None
Connection - circle & vertical
Junction - diagonal up & vertical
Junction - diagonal down & vertical

Shared Relation

Yes
No
Yes
Yes
Yes

Calculation of Jaccard's Index for the comparison of the Guǒ pictogram with the Lyman Lake petroglyph

Total number of shared features M11 = 8

Total number of features N = 11

For Index of Similarity calculation: M10 = 3; M01 = 01

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{3 + 0 + 8} = \frac{8}{11} = 0.7273$$

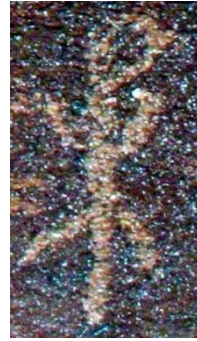
For N = 11 and J = 0.7273; P = 0.01

Chart 20

Chinese Guǒ (fruit tree) Pictogram vs. Valley of Fire Petroglyph



Guǒ pictogram
Image: Frank Chalfant



Valley of Fire glyph

Part 1. Comparison of line strokes

<u>Guǒ pictogram line strokes and analogous tree descriptors</u>	<u>Valley of Fire glyph line strokes and analogous tree descriptors</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Curve-up #1 (left branch)	Curve-up #1 (left branch)	Yes
Curve-up #2 (right branch)	Curve-up #2 (right branch)	Yes
Circle (fruit)	Circle (fruit)	Yes
Diagonal up (left root)	Diagonal up (left root)	Yes
Diagonal down (right root)	Diagonal down (right root)	Yes
Dot	None	No

Part 2. Comparison of line stroke touch relations

<u>Guǒ pictogram line stroke relations</u>	<u>Valley of Fire glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - circle & vertical	Connection - circle & vertical	Yes
Junction - curve-up #1 & vertical	Junction - curve-up #1 & vertical	Yes
Junction - curve-up #2 & vertical	Junction - curve-up #2 & vertical	Yes
Junction - diagonal up & vertical	Junction - diagonal up & vertical	Yes
Junction - diagonal down & vertical	Junction - diagonal down & vertical	Yes
Placement - dot within circle	None	No

Calculation of Jaccard's Index for the comparison of the Guǒ pictogram with the Valley of Fire petroglyph

Total number of shared features M11 = 11

Total number of features N = 13

For Index of Similarity calculation: M10 = 2; M01 = 0

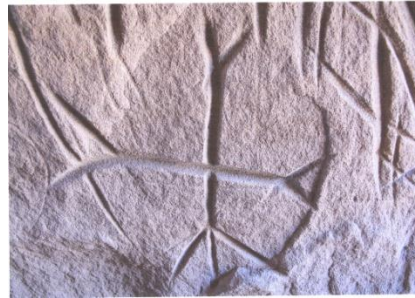
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{2 + 0 + 11} = \frac{11}{13} = 0.8462$$

For N = 13 and J = 0.8462; P = 0.001

Chart 21 Chinese Cì (thorn) Pictogram vs. Oklahoma Petroglyph



Cì pictogram
Image: Richard Sears



Oklahoma glyph

Part 1. Comparison of line strokes

<u>Cì pictogram line strokes and analogous thorn descriptors</u>	<u>Oklahoma glyph line strokes and analogous thorn descriptors</u>	<u>Shared Feature</u>
Vertical (central stem)	Vertical (central stem)	Yes
Horizontal (central branch)	Horizontal (central branch)	Yes
Diagonal down #1 (top left thorn)	Diagonal down #1 (top left thorn)	Yes
Diagonal up #1 (top right thorn)	Diagonal up #1 (top right thorn)	Yes
Diagonal up #2 (left root)	Diagonal up #2 (left root)	Yes
Diagonal down #2 (right root)	Diagonal down #2 (right root)	Yes
Diagonal up #3 (left thorn bottom)	Diagonal up #3 (left thorn bottom)	Yes
Diagonal down #3 (left thorn top)	Diagonal down #3 (left thorn top)	Yes
Diagonal up #4 (right thorn top)	Diagonal up #4 (right thorn top)	Yes
Diagonal down #4 (right thorn bottom)	Diagonal down #4 (right thorn bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Cì pictogram line stroke relations</u>	<u>Oklahoma glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - horizontal & vertical	Intersection - horizontal & vertical	Yes
Connection - diagonal down #1 & vertical	Connection - diagonal down #1 & vertical	Yes
Connection - diagonal up #1 & vertical	Connection - diagonal up #1 & vertical	Yes
Junction - diagonal up #2 & vertical	Junction - diagonal up #2 & vertical	Yes
Junction - diagonal down #2 & vertical	Junction - diagonal down #2 & vertical	Yes
Connection - diagonal up #3 & horizontal	Connection - diagonal up #3 & horizontal	Yes
Connection - diagonal down #3 & horizontal	Connection - diagonal down #3 & horizontal	Yes
Connection - diagonal up #4 & horizontal	Connection - diagonal up #4 & horizontal	Yes
Connection - diagonal down #4 & horizontal	Connection - diagonal down & horizontal	Yes

Calculation of Jaccard's Index for the comparison of the Cì pictogram with the Oklahoma petroglyph

Total number of shared features M11 = 19

Total number of features N = 19

For Index of Similarity calculation:

M10 = 0;

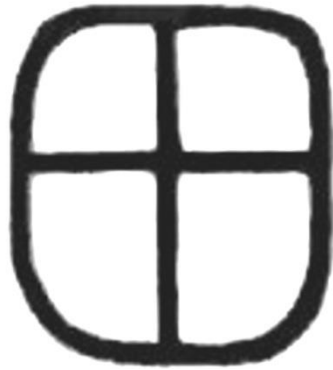
M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{19}{0 + 0 + 19} = \frac{19}{19} = 1.0000$$

For N = 19 and J = 1.0000; P < 0.001

Chart 22

Chinese Tián (field) Pictogram vs. Piedras Marcadas Canyon Petroglyph



Tián pictogram
Image: Richard Sears



Piedras Marcadas Canyon glyph

Part 1. Comparison of line strokes

<u>Tián pictogram line strokes</u>	<u>Piedras Marcadas Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal	Horizontal	Yes
Arc down	Arc down	Yes
Arc up	Arc up	Yes

Part 2. Comparison of line stroke touch relations

<u>Tián pictogram line stroke relations</u>	<u>Piedras Marcadas Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal	Intersection - vertical & horizontal	Yes
Junction - vertical & arc down	Junction - vertical & arc down	Yes
Junction - vertical & arc up	Intersection - vertical & arc up	No
Junction - horizontal & arc connection point	Junction - horizontal & arc connection point	Yes
Junction - horizontal & arc connection point	Junction - horizontal & arc connection point	Yes
Connection - arc down & arc up (left)	Connection - arc down & arc up (left)	Yes
Connection - arc down & arc up (right)	Connection - arc down & arc up (right)	Yes

Calculation of Jaccard's Index for the comparison of the Tián pictogram with the Piedras Marcadas petroglyph

Total number of shared features M11 = 10

Total number of features N = 11

For Index of Similarity calculation: M10 = 1; M01 = 0

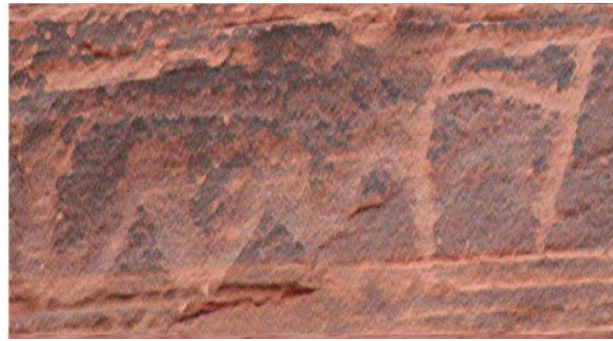
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{1 + 0 + 10} = \frac{10}{11} = 0.9091$$

For N = 11 and J = 0.9091; P = 0.001

Chart 23 Chinese Zhōu (boat) Pictogram vs. Valley of Fire Petroglyph



Zhōu pictogram
Image: Bernhard Karlgren



Valley of Fire glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Valley of Fire glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Vertical left (hull + strake)	Vertical left (hull + strake)	Yes
Vertical right (hull + strake)	Vertical right (hull + strake)	Yes
Horizontal #1 (bow)	Horizontal #1 (bow)	Yes
Horizontal #2 (stern)	Horizontal #2 (stern)	Yes
None	Wavy line (water)	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Valley of Fire glyph line stroke relations</u>	<u>Shared Relation</u>
Parallel - vertical right & vertical left	Parallel - vertical right & vertical left	Yes
Junction - horizontal #1 & vertical left	Junction - horizontal #1 & vertical left	Yes
Junction - horizontal #1 & vertical right	Junction - horizontal #1 & vertical right	Yes
Junction - horizontal #2 & vertical left	Junction - horizontal #2 & vertical left	Yes
Junction - horizontal #2 & vertical right	Junction - horizontal #2 & vertical right	Yes
None	Connection - wavy line & vertical right	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Valley of Fire petroglyph

Total number of shared features $M11 = 9$

Total number of features $N = 11$

For Index of Similarity calculation: $M10 = 0;$ $M01 = 2$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 2 + 9} = \frac{9}{11} = 0.8182$$

For $N = 11$ and $J = 0.8182;$ $P < 0.01$

Chart 24

Chinese Wèi (large tree) Pictogram vs. Valley of Fire Petroglyph



Wèi pictogram
Image: Richard Sears



Valley of Fire glyph

Part 1. Comparison of line strokes

<u>Wèi pictogram line strokes and analogous tree descriptors</u>	<u>Valley of Fire glyph line strokes and analogous tree descriptors</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Curve-up #1 (top left branch)	Curve-up #1 (top left branch)	Yes
Curve-up #2 (top right branch)	Curve-up #2 (top right branch)	Yes
None	Curve-up #3 (middle left branch)	No
None	Curve-up #4 (middle right branch)	No
Curve-up #3 (lower left branch)	Curve-up #5 (lower left branch)	Yes
Curve-up #4 (bottom right branch)	Curve-up #6 (lower right branch)	Yes
Horizontal #1 (left ground)	Diagonal up #1 (left top root)	No
Horizontal #2 (right ground)	Diagonal down #1 (right top root)	No
Diagonal Up (left root)	Diagonal up #2 (left bottom root)	Yes
Diagonal down (right root)	Diagonal down #2 (right bottom root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Wèi pictogram line stroke relations</u>	<u>Valley of Fire glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - curve-up #1 & vertical	Junction - curve-up #1 & vertical	Yes
Junction - curve-up #2 & vertical	Junction - curve-up #2 & vertical	Yes
None	Junction - curve-up #3 & vertical	No
None	Junction - curve-up #4 & vertical	No
Junction - curve-up #3 & vertical	Junction - curve-up #5 & vertical	Yes
Junction - curve-up #4 & vertical	Junction - curve-up #6 & vertical	Yes
Junction - horizontal #1 & vertical	Junction - diagonal up #1 & vertical	Yes
Junction - horizontal #2 & vertical	Junction - diagonal down #1 & vertical	Yes
Junction - diagonal up & vertical	Junction - diagonal up #2 & vertical	Yes
Junction - diagonal down & vertical	Junction - diagonal down #2 & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Wèi pictogram with the Valley of Fire petroglyph

Total number of shared features M11 = 15

Total number of features N = 21

For Index of Similarity calculation: M10 = 2; M01 = 4

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{2 + 4 + 15} = \frac{15}{21} = 0.7143$$

For N = 21 and J = 0.7143; P = 0.001

Chart 25

Chinese Guǒ (fruit tree) Pictogram vs. Piedras Marcadas Canyon Petroglyph



Guǒ pictogram
Image: Richard Sears



Piedras Marcadas Canyon glyph

Part 1. Comparison of line strokes

<u>Guǒ Pictogram line strokes and analogous tree descriptors</u>	<u>Piedras Marcadas Canyon glyph line strokes and analogous tree descriptors</u>	<u>Shared Relation</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Diagonal down #1(left branch)	Curve-up #1(left branch)	No
Curve-up (right branch)	Curve-up #2 (right branch)	Yes
Circle (fruit)	Circle (fruit)	Yes
Diagonal up (left root)	Diagonal up (left root)	Yes
Diagonal down #2 (right root)	Diagonal down (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Guǒ pictogram line stroke relations</u>	<u>Piedras Marcadas Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - diagonal down #1 & circle	Junction - curve-up #1 & circle	Yes
Junction - curve-up & vertical	Junction - curve-up #2 & circle	No
Connection - circle & vertical	Connection - circle & vertical	Yes
Junction - diagonal up & vertical	Junction - diagonal up & vertical	Yes
Junction - diagonal down #2 & vertical	Junction - diagonal down & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Guǒ pictogram with the Piedras Marcadas petroglyph

Total number of shared features M11 = 9

Total number of features N = 11

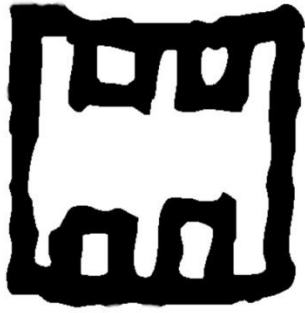
For Index of Similarity calculation: M10 = 2; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{2 + 0 + 9} = \frac{9}{11} = 0.8182$$

For N = 11 and J = 0.8182; P < 0.01

Chart 26

Chinese Chǐ (teeth) Pictogram vs. Grapevine Canyon Petroglyph



Chǐ pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Chǐ pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (exterior left)	Vertical #1 (exterior left)	Yes
Vertical #2 (exterior right)	Vertical #2 (exterior right)	Yes
Horizontal #1 (exterior top)	Horizontal #1 (exterior top)	Yes
Horizontal #2 (exterior bottom)	Curve-up (exterior left bottom)	No
Vertical #3 (interior left top)	Vertical #3 (interior left top)	Yes
Vertical #4 (interior left center top)	Vertical #4 (interior left center top)	Yes
Vertical #5 (interior right center top)	Vertical #5 (interior right center top)	Yes
Vertical #6 (interior right top)	Vertical #6 (interior right top)	Yes
Horizontal #3 (interior left top)	Horizontal #2 (interior left top)	Yes
Horizontal #4 (interior right top)	Horizontal #3 (interior right top)	Yes
Vertical #7 (interior left bottom)	Vertical #7 (interior left bottom)	Yes
Vertical #8 (interior left center bottom)	Vertical #8 (interior left center bottom)	Yes
Vertical #9 (interior right center bottom)	Vertical #9 (interior right center bottom)	Yes
Vertical #10 (interior right bottom)	Vertical #10 (interior right bottom)	Yes
Horizontal #5 (interior left bottom)	Horizontal #4 (interior left bottom)	Yes
Horizontal #6 (interior right bottom)	Horizontal #5 (interior right bottom)	Yes
None	Vertical #11 (interior far left bottom)	No

Part 2. Comparison of line stroke touch relations

<u>Chinese Chǐ pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Connection - vertical #2 & horizontal #1	Connection - vertical #2 & horizontal #1	Yes
Connection - vertical #1 & horizontal #2	Connection - vertical #1 & curve-up	Yes
Connection - vertical #2 & horizontal #2	Connection - vertical #2 & curve-up	Yes

- Chart continued on the following page -

<u>Chī pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical #3 & horizontal #1	Junction - vertical #3 & horizontal #1	Yes
Connection - vertical #3 & horizontal #3	Connection - vertical #3 & horizontal #3	Yes
Junction - vertical #4 & horizontal #1	Junction - vertical #4 & horizontal #1	Yes
Connection - vertical #4 & horizontal #3	Connection - vertical #4 & horizontal #3	Yes
Junction - vertical #5 & horizontal #1	Junction - vertical #5 & horizontal #1	Yes
Connection - vertical #5 & horizontal #4	Connection - vertical #5 & horizontal #4	Yes
Junction - vertical #6 & horizontal #1	Junction - vertical #6 & horizontal #1	Yes
Connection - vertical #6 & horizontal #4	Connection - vertical #6 & horizontal #4	Yes
Junction - vertical #7 & horizontal #2	Junction - vertical #7 & curve-up #2	Yes
Connection - vertical #7 & horizontal #5	Connection - vertical #7 & horizontal #5	Yes
Junction - vertical #8 & horizontal #2	Junction - vertical #8 & curve-up	Yes
Connection - vertical #8 & horizontal #5	Connection - vertical #8 & horizontal #5	Yes
Junction - vertical #9 & horizontal #2	Junction - vertical #9 & curve-up	Yes
Connection - vertical #9 & horizontal #6	Connection - vertical #9 & horizontal #6	Yes
Junction - vertical #10 & horizontal #2	Junction - vertical #10 & curve-up	Yes
Connection - vertical #10 & horizontal #6	Connection - vertical #10 & horizontal #6	Yes
None	Junction - vertical #11 & curve-up	No

Calculation of Jaccard's Index for the comparison of the Chī pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 35

Total number of features N = 38

For Index of Similarity calculation: M10 = 1; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{35}{1 + 2 + 35} = \frac{35}{38} = 0.9211$$

For N = 38 and J = 0.9211; P < 0.001

Chart 27

Chinese Cì (thorn) Pictogram vs. St. Johns, Arizona Petroglyph



Cì pictogram
Image: Frank Chalfant



St. Johns glyph

Part 1. Comparison of line strokes

<u>Cì pictogram line strokes with analogous thorn descriptors</u>	<u>St. Johns glyph line strokes with analogous thorn descriptors</u>	<u>Shared Feature</u>
Vertical (central stem)	Vertical (central stem)	Yes
Horizontal (central branch)	Horizontal (central branch)	Yes
Curve-up #1 (left top branch)	Curve-up #1 (left top branch)	Yes
Curve-up #2 (right top branch)	Curve-up #2 (right top branch)	Yes
Diagonal up #1(left root)	Diagonal up #1 (left root)	Yes
Diagonal down #1(right root)	Diagonal down #1 (right root)	Yes
Diagonal up #2 (left thorn)	Diagonal up #2 (left thorn)	Yes
Diagonal down #2 (left thorn)	Diagonal down #2 (left thorn)	Yes
Diagonal up #3 (right thorn)	Diagonal up #3 (right thorn)	Yes
Diagonal down #3 (right thorn)	Diagonal down #3 (right thorn)	Yes

Part 2. Comparison of line stroke touch relations

<u>Cì pictogram line stroke relations</u>	<u>St. Johns glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - horizontal & vertical	Intersection - horizontal & vertical	Yes
Junction - curve-up #1 & vertical	Junction - curve-up #1 & vertical	Yes
Junction - curve-up #2 & vertical	Junction - curve-up #2 & vertical	Yes
Junction - diagonal up #1 & vertical	Junction - diagonal up #1 & vertical	Yes
Junction - diagonal down #1 & vertical	Junction - diagonal down #1 & vertical	Yes
Connection - diagonal up #2 & horizontal	Connection - diagonal up #2 & horizontal	Yes
Connection - diagonal down #2 & horizontal	Connection - diagonal down #2 & horizontal	Yes
Connection - diagonal up #3 & horizontal	Connection - diagonal up #3 & horizontal	Yes
Connection - diagonal down #3 & horizontal	Connection - diagonal down #3 & horizontal	Yes

Calculation of Jaccard's Index for the comparison of the Cì pictogram with the St. Johns, Arizona petroglyph

Total number of shared features M11 = 19

Total number of features N = 19

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{19}{0 + 0 + 19} = \frac{19}{19} = 1.0000$$

For N = 19 and J = 1.0000; P < 0.001

Chart 28

Chinese Wén (man) Pictogram vs. Jeffers Petroglyphs Historic Site Petroglyph



Wén pictogram
Image: Richard Sears



Jeffers glyph

Part 1. Comparison of line strokes

Wén pictogram line strokes

Arc down
Vertical
Diagonal down
Diagonal up

Jeffers petroglyph line strokes

Arc down
Vertical
Diagonal down
Diagonal up

Shared Feature

Yes
Yes
Yes
Yes

Part 2. Comparison of line stroke touch relations

Wén pictogram line stroke relations

Junction - vertical & arc down
Junction - diagonal down & arc down
Junction - diagonal up & arc down
Intersection - diagonal up & diagonal down

Jeffers petroglyph line stroke relations

Junction - vertical & arc down
Junction - diagonal down & arc down
Junction - diagonal up & arc down
Intersection - diagonal up & diagonal down

Shared Relation

Yes
Yes
Yes
Yes

Calculation of Jaccard's Index for the comparison of the Wén pictogram with the Jeffers Petroglyphs Historic Site petroglyph

Total number of shared features $M11 = 8$

Total number of features $N = 8$

For Index of Similarity calculation:

$M10 = 0;$

$M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{0 + 0 + 8} = \frac{8}{8} = 1.0000$$

For $N = 8$ and $J = 1.0000;$ $P = 0.001$

Chart 29

Chinese Wén (man) Pictogram vs. Boca Negra Canyon Petroglyph



Wén pictogram
Image: Richard Sears



Boca Negra Canyon glyph

Part 1. Comparison of line strokes

<u>Wén pictogram line strokes</u>	<u>Boca Negra Canyon glyph line strokes</u>	<u>Shared Feature</u>
Arc down (arms)	Arc down (arms)	Yes
Vertical (head)	Vertical - head	Yes
Diagonal down (body-leg)	Diagonal down (body-leg)	Yes
Diagonal up (body-leg)	Diagonal up (body-leg)	Yes
None	Horizontal	No

Part 2. Comparison of line stroke touch relations

<u>Wén pictogram line stroke relations</u>	<u>Boca Negra Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical & arc down	Junction - vertical & arc down	Yes
Junction - Diagonal down & arc down	Junction - diagonal down & arc down	Yes
Junction - diagonal up & arc down	Junction - diagonal up & arc down	Yes
Intersection - diagonal up & diagonal down	Intersection - diagonal up & diagonal down	Yes
None	Junction - diagonal down & horizontal	No
None	Junction - diagonal up & horizontal	No

Calculation of Jaccard's Index for the comparison of the Wén pictogram with the Boca Negra Canyon petroglyph

Total number of shared features M11 = 8

Total number of features N = 11

For Index of Similarity calculation:

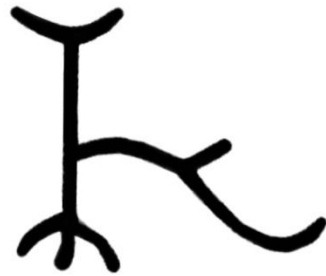
M10 = 0; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{0 + 3 + 8} = \frac{8}{11} = 0.7273$$

For N = 11 and J = 0.7273; P = 0.01

Chart 30

Chinese Quǎn (dog) Pictogram vs. Rinconada Canyon Petroglyph



Quǎn pictogram
Image: Frank Chalfant



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Quǎn pictogram line strokes and analogous zoomorph features</u>	<u>Rinconada Canyon glyph line strokes and analogous zoomorph features</u>	<u>Shared Feature</u>
Arc up #1 (head)	Arc up (head)	Yes
Vertical (forebody)	Vertical #1 (forebody)	Yes
Diagonal up #1 (foreleg)	Diagonal up (foreleg)	Yes
Diagonal down (foreleg)	Diagonal down (foreleg)	Yes
Wavy line (body)	Wavy line (body)	Yes
Diagonal up #2 (tail)	Curve right (tail)	No
None	Inverted "T"	No
None	Vertical #2 (hind leg)	No

Part 2. Comparison of line stroke touch relations

<u>Quǎn pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - arc up #1 & vertical	Junction - arc up & vertical #1	Yes
Junction - diagonal up #1 & vertical	Junction - diagonal up & vertical #1	Yes
Junction - diagonal down & vertical	Junction - diagonal down & vertical #1	Yes
Junction - vertical & wavy line	Junction - vertical #1 & wavy line	Yes
Junction - diagonal up #2 & wavy line	Junction - curve right & wavy line	Yes
None	Junction - inverted "T" & wavy line	No
None	Junction - vertical #2 & wavy line	No

Calculation of Jaccard's Index for the comparison of the Quǎn pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 10

Total number of features N = 15

For Index of Similarity calculation:

M10 = 1;

M01 = 4

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{1 + 4 + 10} = \frac{10}{15} = 0.6667$$

For N = 15 and J = 0.6667; P = 0.01

Chart 31

Chinese Huā (flower) Pictogram vs. Rinconada Canyon Petroglyph



Huā pictogram
Image: Frank Chalfant



Rinconada glyph

Part 1. Comparison of line strokes

<u>Huā pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Arc down #1 (left top flower)	Arc down #1 (left top flower)	Yes
Arc down #2 (right top flower)	Arc down #2 (right top flower)	Yes
Arc down #3 (left bottom flower)	Arc down #3 (left bottom flower)	Yes
Arc down #4 (right bottom flower)	Arc down #4 (right bottom flower)	Yes
Diagonal up #1 (stem top)	Diagonal up #1 (stem top)	Yes
Dot #1 (left top flower)	Dot #1 (left top flower)	Yes
Dot #2 (right top flower)	Dot #2 (right top flower)	Yes
Dot #3 (left bottom flower)	Dot #3 (left bottom flower)	Yes
Dot #4 (right bottom flower)	Dot #4 (right bottom flower)	Yes
Vertical (stem)	Vertical (stem)	Yes
Diagonal up #2 (left top root)	Horizontal #1 (left top)	No
Diagonal down #1 (right top root)	Horizontal #2 (right top)	No
Diagonal up #3 (left bottom root)	Horizontal #3 (left bottom)	No
Diagonal down #2 (right bottom root)	Horizontal #4 (right bottom)	No

Part 2. Comparison of line stroke touch relations

<u>Huā pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - arc down #1 & vertical	Junction - arc down #1 & vertical	Yes
Junction - arc down #2 & vertical	Junction - arc down #2 & vertical	Yes
Junction - arc down #3 & vertical	Junction - arc down #3 & vertical	Yes
Junction - arc down #4 & vertical	Junction - arc down #4 & vertical	Yes
Connection - diagonal up #1 & vertical	Connection - diagonal up #1 & vertical	Yes
Placement - dot #1 within arc down #1	Placement - dot #1 within arc down #1	Yes
Placement - dot #2 within arc down #2	Placement - dot #2 within arc down #2	Yes
Placement - dot #3 within arc down #3	Placement - dot #3 within arc down #3	Yes
Placement - dot #4 within arc down #4	Placement - dot #4 within arc down #4	Yes
Junction - diagonal up #2 & vertical	Junction - horizontal #1 & vertical	Yes
Junction - diagonal down #1 & vertical	Junction - horizontal #2 & vertical	Yes
Junction - diagonal up #3 & vertical	Connection - horizontal #3 & vertical	No
Junction - diagonal down #2 & vertical	Connection - horizontal #4 & vertical	No

**Calculation of Jaccard's Index for the comparison of the Huā pictogram
with the Rinconada Canyon petroglyph**

Total number of shared features $M_{11} = 21$

Total number of features $N = 27$

For Index of Similarity calculation: $M_{10} = 6$; $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{21}{6 + 0 + 21} = \frac{21}{27} = 0.7778$$

For $N = 27$ and $J = 0.7778$; $P < 0.001$

Chart 32 Chinese Zhōu (boat) Pictogram vs. Petrified Forest Petroglyph



Zhōu pictogram
Image: Richard Sears



Plain photograph



Photo with red trace lines

Petrified Forest glyph

Part 1. Comparison of line strokes

Zhōu pictogram line strokes and analogous nautical features

Vertical #1 (left hull + strake)
Vertical #2 (right hull + strake)
Horizontal #1 (bow)
Horizontal #2 (bow thwart)
Horizontal #3 (midship thwart)
Horizontal #4 (stern)
Wavy line (water)

Petrified Forest glyph line strokes and analogous nautical features

Vertical #1 (left hull + strake)
Vertical #2 (right hull + strake)
Horizontal #1 (bow)
Horizontal #2 (bow thwart)
Horizontal #3 (midship thwart)
Horizontal #4 (stern)
Wavy line (water)

Shared Feature

Yes
Yes
Yes
Yes
Yes
Yes
Yes

Part 2. Comparison of line stroke touch relations

Zhōu pictogram line stroke relations

Parallel - vertical #1 & vertical #2
None
Connection - horizontal #1 & vertical #2
Junction - horizontal #2 & vertical #1
None
Junction - horizontal #3 & vertical #1
Junction - horizontal #3 & vertical #2
Junction - horizontal #4 & vertical #1
None
Connection - wavy line & horizontal #1

Petrified Forest glyph line stroke relations

Parallel - vertical #1 & vertical #2
Connection - horizontal #1 & vertical #1
Connection - horizontal #1 & vertical #2
Junction - horizontal #2 & vertical #1
Junction - horizontal #2 & vertical #2
Junction - horizontal #3 & vertical #1
Junction - horizontal #3 & vertical #2
Junction - horizontal #4 & vertical #1
Junction - horizontal #4 & vertical #2
Connection - wavy line & horizontal #1

Shared Relation

Yes
No
Yes
Yes
No
Yes
Yes
Yes
No
Yes

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Petrified Forest petroglyph

Total number of shared features M11 = 14

Total number of features N = 17

For Index of Similarity calculation:

M10 = 0;

M01 = 3

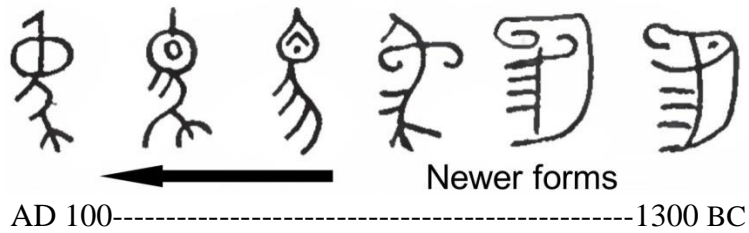
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{14}{0 + 3 + 14} = \frac{14}{17} = 0.8235$$

For N = 17 and J = 0.8235;

P < 0.001

Chart 35

Chinese Xiàng (elephant) Pictogram vs. Petrified Forest Petroglyph



Evolution of the Chinese Xiàng pictogram

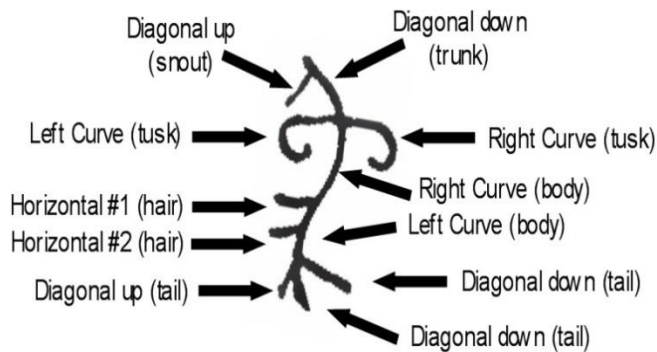
From: "Early Chinese Writing" by Frank Chalfant



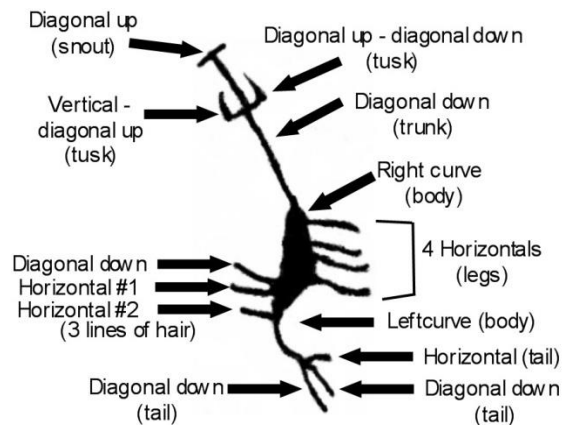
Bronze era Xiàng pictogram



Petrified Forest petroglyph



Chinese bronze era Xiàng pictogram line strokes



Petrified Forest petroglyph line strokes

- Chart continued on the following page -



Petrified Forest petroglyph showing bifurcation at the end of the trunk

Part 1. Comparison of line strokes

<u>Xiàng pictogram line strokes and analogous zoomorph descriptors</u>	<u>Petrified Forest glyph line strokes and analogous zoomorph descriptors</u>	<u>Shared Feature</u>
Diagonal up #1 (tail left)	Diagonal down #1 (tail left)	No (Yes)
Diagonal down #1 (tail center)	Diagonal down #2 (tail center)	Yes
Diagonal down #2 (tail right)	Horizontal (tail right)	No (Yes)
Horizontal #1 (hair)	Horizontal left #1 (hair)	Yes
Horizontal #2 (hair)	Horizontal left #2 (hair)	Yes
None	Diagonal down #3 (hair)	No
Right curve #1 (forebody and head)	Right curve (forebody and head)	Yes
Left curve #1 (posterior body)	Left curve (posterior body)	Yes
Left curve #2 (left tusk)	Vertical / diagonal up (left tusk)	No
Right curve #2 (right tusk)	Diagonal up / diagonal down (right tusk)	No
Diagonal down #3 (trunk)	Diagonal down #4 (trunk)	Yes
Diagonal up #2 (bifurcated snout)	Diagonal up (bifurcated snout)	Yes
None	Horizontal right #1 (leg)	No (Omit)
None	Horizontal right #2 (leg)	No (Omit)
None	Horizontal right #3 (leg)	No (Omit)
None	Horizontal right #4 (leg)	No (Omit)

Part 2. Comparison of line stroke touch relations

<u>Xiàng pictogram line stroke relations</u>	<u>Petrified Forest glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - diagonal up #1 & left curve #1	Connection - diagonal down #1 & left curve	Yes
Connection - diagonal down #1 & left curve #1	Connection - diagonal down #2 & left curve	Yes
Connection - diagonal down #2 & left curve #1	Connection - horizontal & left curve	Yes
Junction - horizontal #1 & left curve #1	Junction - horizontal left #1 & left curve	Yes
Junction - horizontal #2 & left curve #1	Junction - horizontal left #2 & left curve	Yes

- Chart continued on the following page -

<u>Xiàng pictogram line stroke relations</u>	<u>Petrified Forest glyph line stroke relations</u>	<u>Shared Relation</u>
None	Junction - diagonal down #3 & left curve	No
Junction - left curve #2 & diagonal down #3	Junction - vertical up / diagonal up & diagonal down #4	Yes
Junction - right curve #2 & diagonal down #3	Junction - diagonal up / diagonal down & diagonal down #4	Yes
Junction - diagonal up #2 & diagonal down #3	Junction - diagonal up & diagonal down #4	Yes
None	Junction - horizontal right #1 & right curve (body)	No (Omit)
None	Junction - horizontal right #2 & right curve (body)	No (Omit)
None	Junction - horizontal right #3 & right curve (body)	No (Omit)
None	Junction - horizontal right #4 & right curve (body)	No (Omit)

Calculation of Jaccard's Index for the comparison of the Xiàng pictogram with the Petrified Forest petroglyph

Total number of shared features M11 = 15

Total number of features N = 29

For Index of Similarity calculation: M10 = 4; M01 = 10

$$\text{Jaccard Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{4 + 10 + 15} = \frac{15}{29} = 0.5172$$

For N = 29 and J = 0.5172; P = 0.05

Alternative calculation of Jaccard's Index without regard to the orientation of the trifold tail and omitting the four additional horizontal leg lines on the petroglyph

Note: Alternative values shown in parentheses alongside "Shared Relation" column.

Total number of shared features M11 = 17

Total number of features N = 21

For Index of Similarity calculation: M10 = 2; M01 = 2

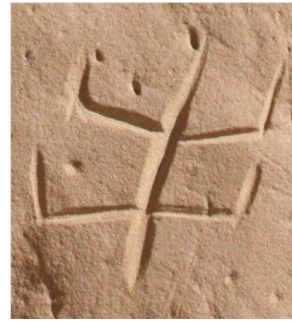
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{17}{2 + 2 + 17} = \frac{17}{21} = 0.8095$$

For N = 21 and J = 0.8095; P < 0.001

Chart 36 Chinese Shǒu (hand) Pictogram vs. Chaco Canyon Petroglyph



Shǒu pictogram
Image: Frank Chalfant



Chaco Canyon glyph

Part 1. Comparison of line strokes

<u>Shǒu pictogram line strokes</u>	<u>Chaco Canyon glyph line strokes</u>	<u>Shared Feature</u>
Left Curve (center line)	Left Curve (center line)	Yes
Vertical #1 (left top)	Diagonal up #1 (left top)	No
Vertical #2 (right top)	Diagonal up #2 (right top)	No
Vertical #3 (left bottom)	Vertical (left bottom)	Yes
Vertical #4 (right bottom)	Diagonal up #3 (right bottom)	No
Horizontal #1 (left top)	Diagonal down (left top)	No
Horizontal #2 (right top)	Horizontal #1(right top)	Yes
Horizontal #3 (left bottom)	Horizontal #2 (left bottom)	Yes
Horizontal #4 (right bottom)	Horizontal #3 (right bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Shǒu pictogram line stroke relations</u>	<u>Chaco Canyon line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - diagonal up #1 & diagonal down	Yes
Connection - vertical #2 & horizontal #2	Connection - diagonal up #2 & horizontal #1	Yes
Connection - vertical #3 & horizontal #3	Connection - vertical & horizontal #2	Yes
Connection - vertical #4 & horizontal #4	Connection - diagonal up #3 & horizontal #3	Yes
Connection - horizontal #1 & left curve	Connection - diagonal down & left curve	Yes
Connection - horizontal #2 & left curve	Connection - horizontal #1 left curve	Yes
Connection - horizontal #3 & left curve	Connection - horizontal #2 & left curve	Yes
Connection - horizontal #4 & left curve	Connection - horizontal #3 & left curve	Yes

Calculation of Jaccard's Index for the comparison of the Shǒu pictogram with the Chaco Canyon petroglyph

Total number of shared features M11 = 13

Total number of features N = 17

For Index of Similarity calculation:

M10 = 4; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{4 + 0 + 13} = \frac{13}{17} = 0.7647$$

For N = 17 and J = 0.7647; P = 0.001

Chart 37

Chinese Quǎn (dog) Pictogram vs. Grapevine Canyon Petroglyph



Quǎn pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Quǎn pictogram line strokes and analogous zoomorph features</u>	<u>Grapevine Canyon glyph line strokes and analogous zoomorph features</u>	<u>Shared Feature</u>
Arc up (body)	Horizontal (body)	No
Arc down (tail)	Vertical #1 (tail)	No
Vertical #1 (hind leg)	Vertical #2 (hind leg)	Yes
Diagonal up #1 (hind foot)	Diagonal up #1 (hind foot)	Yes
Diagonal down #1 (hind foot)	Diagonal down #1 (hind foot)	Yes
Vertical #2 (front leg)	Vertical #3 (front leg)	Yes
Diagonal up #2 (forefoot)	Diagonal up #2 (forefoot)	Yes
Diagonal down #2 (forefoot)	Diagonal down #2 (forefoot)	Yes
None	Vertical #4 (neck)	No
Diagonal down #3 (ear & snout)	Diagonal down #3 (ear & snout)	Yes
Diagonal up #3 (ear)	Diagonal up #3 (ear)	Yes

Part 2. Comparison of line stroke touch relations

<u>Quǎn pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - arc up & arc down	Connection - horizontal & vertical #1	Yes
Connection - vertical #1 & arc up	Connection - vertical #2 & horizontal	Yes
Junction - diagonal up #1 & vertical #1	Junction - diagonal up #1 & vertical #2	Yes
Junction - diagonal down #1 & vertical #1	Junction - diagonal down #1 & vertical #2	Yes
Connection - vertical #2 & arc up	Connection - vertical #3 & horizontal	Yes
Junction - diagonal up #2 & vertical #2	Junction - diagonal up #2 & vertical #3	Yes
Junction - diagonal down #2 & vertical #2	Junction - diagonal down #2 & vertical #3	Yes
None	Connection - vertical #4 & horizontal	No
Connection - diagonal down #3 & arc up	Connection - diagonal down #3 & vertical #4	No
Junction - diagonal up #3 & arc up	Junction - diagonal up #3 & vertical #4	No

Calculation of Jaccard's Index for the comparison of the Quǎn pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 15

Total number of features N = 21

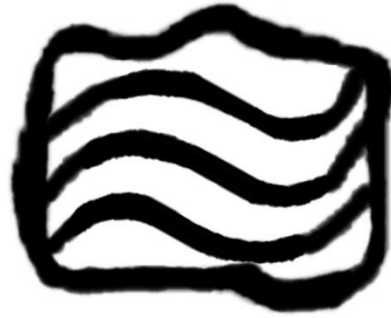
For Index of Similarity calculation: M10 = 4; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{4 + 2 + 15} = \frac{15}{21} = 0.7143$$

For N = 21 and J = 0.7143; P = 0.001

Chart 38

Chinese Yuān (pond) Pictogram vs. Grapevine Canyon Petroglyph



Yuān pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Yuān pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Wavy line #1 (top)	Wavy line #1 (top)	Yes
Wavy line #2 (middle)	Wavy line #2 (middle)	Yes
Wavy line #3 (bottom)	Wavy line #3 (bottom)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Vertical #1 (left)	Vertical #1 (top)	Yes
Vertical #2 (right)	Vertical #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Yuān pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - horizontal #1 & vertical #1	Connection - horizontal #1 & vertical #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - horizontal #2 & vertical #1	Connection - horizontal #2 & vertical #1	Yes
Connection - horizontal #2 & vertical #2	Connection - horizontal #2 & vertical #2	Yes
Placement - wavy line #1 & in phase... with wavy line #2	Placement - wavy line #1 & in phase... with wavy line #2	Yes
Placement - wavy line #2 & in phase... with wavy line #3	Parallel - wavy line #2 & in phase... with wavy line #3	Yes
Placement - wavy lines within cartouche	Placement - wavy lines within cartouche	Yes

Calculation of Jaccard's Index for the comparison of the Yuān pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 14

Total number of features N = 14

For Index of Similarity calculation:

M10 = 0;

M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{14}{0 + 0 + 14} = \frac{14}{14} = 1.0000$$

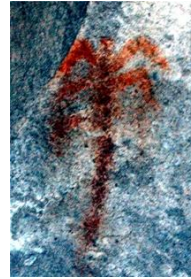
For N = 14 and J = 1.0000; P < 0.001

Chart 39

Chinese Huā (flower) Pictogram vs. Little Colorado River Pictograph



Huā pictogram
Image: Frank Chalfant



Little Colorado River pictograph
(enhanced image)

Part 1. Comparison of line strokes

<u>Huā pictogram line strokes</u>	<u>Little Colorado River pictograph line strokes</u>	<u>Shared Feature</u>
Arc right (stem)	Arc right (stem)	Yes
Diagonal up #1 (left top)	Diagonal up #1 (left top)	Yes
Diagonal down #1 (left top)	Diagonal down #1 (left top)	Yes
Diagonal up #2 (right top)	Diagonal up #2 (right top)	Yes
Diagonal down #2 (right top)	Diagonal down #2 (right top)	Yes
Diagonal up #3 (left middle)	Diagonal up #3 (left middle)	Yes
Diagonal down #3 (right middle)	Diagonal up #4 (right middle)	No
None	Diagonal down #3 (right middle)	No
Horizontal #1	Horizontal	Yes
None	Vertical #1 (at left end of horizontal)	No
None	Vertical #2 (at right end of horizontal)	No
Horizontal #2	Diagonal up	No

Part 2. Comparison of line stroke touch relations

<u>Huā pictogram line stroke relations</u>	<u>Little Colorado River line stroke relations</u>	<u>Shared Relation</u>
Connection - diagonal up #1 & diagonal down #1	Connection - diagonal up #1 & diagonal down #1	Yes
Junction - diagonal down #1 & vertical	Junction - diagonal down #1 & vertical	Yes
Connection - diagonal up #2 & diagonal down #2	Connection - diagonal up #2 & diagonal down #2	Yes
Junction - diagonal up #2 & vertical	Junction - diagonal up #2 & vertical	Yes
Junction - diagonal up #3 & vertical	Junction - diagonal up #3 & vertical	Yes
Junction - diagonal down #3 & vertical	Junction - diagonal up #4 & vertical	Yes
None	Connection - diagonal up #4 & diagonal down #3	No
Intersection - horizontal #1 & vertical	Intersection - horizontal & vertical	Yes
None	Connection - vertical #1 & horizontal	No
None	Connection - vertical #2 & horizontal	No
Intersection - horizontal #2 & vertical	Intersection - diagonal up & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Huā pictogram with the Little Colorado River pictograph

Total number of shared features M11 = 15

Total number of features N = 23

For Index of Similarity calculation: M10 = 2; M01 = 6

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{2 + 6 + 15} = \frac{15}{23} = 0.6522$$

For N = 23 and J = 0.6522; P < 0.01

Chart 40

Chinese Mì (thread) Pictogram vs. Little Colorado River Petroglyph



Mì pictogram
Image: Richard Sears



Little Colorado River glyph

Part 1. Comparison of line strokes

<u>Mì pictogram line strokes</u>	<u>Little Colorado River glyph line strokes</u>	<u>Shared Feature</u>
Diagonal set #1 (down-up-down-up)	Diagonal set #1 (down-up-down-up-down)	Yes (x4)
Diagonal set #2 (up-down-up-down)	Diagonal set #2 (up-down-up-down-up)	Yes (x4)
Vertical #1 (center top)	None	No
Diagonal down #1 (top)	None	No
Diagonal up #1(top)	None	No
Vertical #2 (center bottom)	Vertical (center bottom)	Yes
Diagonal up #2 (bottom)	Diagonal up (bottom)	Yes
Diagonal down #2 (bottom)	Diagonal down (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mì pictogram line stroke relations</u>	<u>Little Colorado River line stroke relations</u>	<u>Shared Relation</u>
Connection - diagonal set #1	Connection -diagonal set #1	Yes (x3)
Connection - diagonal set #2	Connection - diagonal set #2	Yes (x3)
Connection - vertical #1 & diagonals	None	No
Connection - diagonal up #1 & diagonals	None	No
Connection - diagonal up #1 & diagonals	None	No
Connection - vertical #2 & diagonals	Connection - vertical & diagonals	Yes
Connection - diagonal up #2 & diagonals	Connection - diagonal up & diagonals	Yes
Connection - diagonal down #2 & diagonals	Connection - diagonal down & diagonals	Yes
Intersection - sequentially linked diagonals	Intersection - sequentially linked diagonals	Yes (x2)

Calculation of Jaccard's Index for the comparison of the Mì pictogram with the Little Colorado River petroglyph

Total number of shared features $M11 = 22$

Total number of features $N = 28$

For Index of Similarity calculation: $M10 = 0;$ $M01 = 6$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{22}{0 + 6 + 22} = \frac{22}{28} = 0.7857$$

For $N = 28$ and $J = 0.7857;$ $P < 0.001$

Chart 41

Chinese Péng (friend) Pictogram vs. Boca Negra Petroglyph



Péng pictogram
Image: Adapted from Qiu Xigui



Boca Negra glyph

Part 1. Comparison of line strokes

<u>Péng pictogram line strokes</u> <u>(left figure only listed below)</u>	<u>Boca Negra glyph line strokes</u> <u>(left figure only listed below)</u>	<u>Shared Feature</u>
Vertical (back)	Vertical (back)	Yes
Diagonal up #1 (tail)	Diagonal up #1 (tail)	Yes
Diagonal down #1 (tail)	Diagonal down #1 (tail)	Yes
None	Horizontal #1 (tail)	No
Left curve (head)	Left curve (head)	Yes
Diagonal up #2 (beak)	Diagonal down #2 (beak)	No
Dot (eye)	Dot (eye)	Yes
Diagonal down #2 (breast)	Diagonal down #3 (breast)	Yes
Diagonal up #3 (breast)	Diagonal up #2 (breast)	Yes
Horizontal #1 (wing)	Diagonal up #3 (wing)	No
Horizontal #2 (wing)	Horizontal #2 (wing)	Yes
Horizontal #3 (wing)	None	No

Part 2. Comparison of line stroke touch relations

<u>Péng pictogram line stroke relations</u> <u>(left figure only)</u>	<u>Boca Negra line stroke relations</u> <u>(left figure only)</u>	<u>Shared Relation</u>
Connection - vertical & diagonal up #2	Connection - vertical & diagonal down #2	Yes
Connection - left curve (top) & vertical	Connection - left curve (top) & vertical	Yes
Junction - left curve (bottom) & vertical	Junction - left curve (bottom) & vertical	Yes
Placement - dot within arc left	Placement - dot within arc left	Yes
Junction - diagonal down #2 & vertical	Junction - diagonal down #3 & vertical	Yes
Connection - diagonal down #2 & diagonal up #3	Connection - diagonal down #3 & diagonal up #2	Yes
Junction - diagonal up #3 & vertical	Junction - diagonal up #2 & vertical	Yes
None	Connection - horizontal #1 & diagonal up #1	No
None	Connection - horizontal #1 & diagonal down #1	No
None	Junction - horizontal #1 & vertical	No
Junction - horizontal #1 & vertical	Junction - diagonal up #3 & vertical	Yes
Junction - horizontal #2 & vertical	Junction - horizontal #2 & vertical	Yes
None	Connection - diagonal up #3 & horizontal #2	No
Junction - horizontal #3 & vertical	None	No
Junction - diagonal up #1 & vertical	Junction - diagonal up #1 & vertical	Yes
Junction - diagonal down #1 & vertical	Junction - diagonal down #1 & vertical	Yes

**Calculation of Jaccard's Index for the comparison of the Péng pictogram
with the Boca Negra petroglyph**

Note: Numerical values for the line strokes and touch relations are doubled in this formula to account
for the mirror imagery of the Chinese pictogram and the Boca Negra petroglyph.

Total number of shared features $M11 = 38$

Total number of features $N = 56$

For Index of Similarity calculation: $M10 = 8;$ $M01 = 10$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{38}{8 + 10 + 38} = \frac{38}{56} = 0.6786$$

For $N = 56$ and $J = 0.6786;$ $P < 0.001$

Chart 42

Chinese Péng (friend) Pictogram vs. Rinconada Canyon Petroglyph #1



Péng pictogram
Image: Adapted from Qiu Xigui



Rinconada Canyon glyph #1

Part 1. Comparison of line strokes

<u>Péng pictogram line strokes</u>	<u>Rinconada Canyon glyph #1 line strokes</u>	<u>Shared Feature</u>
Bird profile # 1	Bird profile # 1	Yes
Bird profile #2	Bird profile #2	Yes
Wing feathers (profile #1)	Wing feathers (profile #1)	Yes
Wing feathers (profile #2)	Wing feathers (profile #2)	Yes

Part 2. Comparison of line stroke touch relations

<u>Péng pictogram line stroke relations</u>	<u>Rinconada Canyon glyph #1 line stroke relations</u>	<u>Shared Relation</u>
Placement -bird profile #1 facing right	Placement - bird profile #1 facing right	Yes
Placement - bird profile #2 facing left	Placement - bird profile #2 facing left	Yes
Connection - birds at breast	Connection - birds at breast	Yes
Connection - feathers & profile #1	Connection - feathers & profile #1	Yes
Connection - feathers & profile #2	Connection - feathers & profile #2	Yes

Calculation of Jaccard's Index for the comparison of the Péng pictogram with Rinconada Canyon petroglyph #1

Total number of shared features $M11 = 9$

Total number of features $N = 9$

For Index of Similarity calculation:

$M10 = 0;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For $N = 9$ and $J = 1.0000$; $P < 0.001$

Chart 43

Chinese Péng (friend) Pictogram vs. Rinconada Canyon Petroglyph #2



Péng pictogram
Image: Adapted from Qiu Xigui



Rinconada Canyon glyph #2

Part 1. Comparison of line strokes

<u>Péng pictogram line strokes</u>	<u>Rinconada Canyon glyph # 2 line strokes</u>	<u>Shared Feature</u>
Bird profile # 1	Bird profile # 1	Yes
Bird profile #2	Bird profile #2	Yes
Wing feathers (profile #1)	Wing feathers (profile #1)	Yes
Wing feathers (profile #2)	Wing feathers (profile #2)	Yes

Part 2. Comparison of line stroke touch relations

<u>Péng pictogram line stroke relations</u>	<u>Rinconada Canyon glyph #2 line stroke relations</u>	<u>Shared Relation</u>
Placement - bird profile #1 facing right	Placement - bird profile #1 facing right	Yes
Placement - bird profile #2 facing left	Placement - bird profile #2 facing left	Yes
Connection - birds at breast	Connection - birds at breast	Yes
Connection - feathers & profile #1	Connection - feathers & profile #1	Yes
Connection - feathers & profile #2	Connection - feathers & profile #2	Yes

Calculation of Jaccard's Index for the comparison of the Péng pictogram with Rinconada Canyon petroglyph #2

Total number of shared features $M_{11} = 9$

Total number of features $N = 9$

For Index of Similarity calculation:

$M_{10} = 0;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For $N = 9$ and $J = 1.0000$; $P < 0.001$

Chart 44 Chinese Wén (man) Pictogram vs. Coal Canyon Petroglyph



Coal Canyon glyph
Image: Richard Sears



Oracle-bone Wén pictogram

Part 1. Comparison of line strokes

<u>Wén pictogram line strokes</u>	<u>Coal Canyon glyph line strokes</u>	<u>Shared Feature</u>
Curve-up	Curve-up	Yes
Vertical (head)	Vertical (head)	Yes
Diagonal down	Diagonal down	Yes
Diagonal up	Diagonal up	Yes
None	Left hand	No
None	Right hand	No

Part 2. Comparison of line stroke touch relations

<u>Wén pictogram line stroke relations</u>	<u>Coal Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical & curve-up	Junction - vertical & curve-up	Yes
Junction - diagonal down & curve-up	Junction - diagonal down & curve-up	Yes
Junction - diagonal up & curve-up	Junction - diagonal up & curve-up	Yes
Intersection - diagonal up & diagonal down	Intersection - diagonal up & diagonal down	Yes
None	Connection - curve-up & left hand	No
None	Connection - curve-up & right hand	No

Calculation of Jaccard's Index for the comparison of the Wén pictogram with the Coal Canyon petroglyph

Total number of shared features $M11 = 8$

Total number of features $N = 12$

For Index of Similarity calculation:

$M10 = 0;$

$M01 = 4$

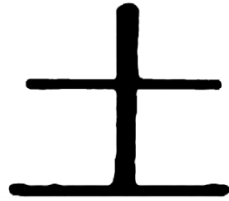
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{0 + 4 + 8} = \frac{8}{12} = 0.6667$$

For $N = 12$ and $J = 0.6667;$

$P = 0.05$

Chart 45

Chinese Tǔ (ground) Pictogram vs. Rinconada Canyon Petroglyph



Tǔ pictogram
Image: Frank Chalfant



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Tǔ pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal #1 (crossbar)	Horizontal #1 (crossbar)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Tǔ pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal #1	Intersection - vertical & horizontal #1	Yes
Junction - vertical & horizontal #2	Junction - vertical & horizontal #2	Yes

Calculation of Jaccard's Index for the comparison of the Tǔ pictogram with the Rinconada Canyon petroglyph

Total number of shared features $M11 = 5$

Total number of features $N = 5$

For Index of Similarity calculation: $M10 = 0;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For $N = 5$ and $J = 1.0000;$ $P = 0.01$

Chart 46 Chinese Jí (auspicious) Pictogram vs. Rinconada Canyon Petroglyph



Jí pictogram
Image: Frank Chalfant



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Jí pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal #1 (crossbar)	Horizontal #1 (crossbar)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Arc up	Arc up	Yes

Part 2. Comparison of line stroke touch relations

<u>Jí pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal #1	Intersection - vertical & horizontal #1	Yes
Junction - vertical & horizontal #2	Junction - vertical & horizontal #2	Yes
Junction - arc up & horizontal #2 (left)	Connection - arc up & horizontal #2 (left)	No
Junction - arc up & horizontal #2 (right)	Connection - arc up & horizontal #2 (right)	No

Calculation of Jaccard's Index for the comparison of the Jí pictogram with the Rinconada Canyon petroglyph

Total number of shared features $M11 = 6$

Total number of features $N = 8$

For Index of Similarity calculation:

$M10 = 2;$

$M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{6}{2 + 0 + 6} = \frac{6}{8} = 0.7500$$

For $N = 8$ and $J = 0.7500;$

$P = 0.05$

Chart 47

Chinese Dà Jiǎ (5th Shang Dynasty King) vs. Rinconada Canyon Petroglyph



Dà Jiǎ

Images: Adapted from Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Dà Jiǎ pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal	Horizontal	Yes
Stickman	Stickman	Yes

Part 2. Comparison of line stroke touch relations

<u>Dà Jiǎ pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal	Intersection - vertical & horizontal	Yes
Placement - stickman (Dà) adjoining Jiǎ	Placement - stickman (Dà) connection Jiǎ	No

Calculation of Jaccard's Index for the comparison of the Dà Jiǎ pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 4

Total number of features N = 5

For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{4}{1 + 0 + 4} = \frac{4}{5} = 0.8000$$

For N = 5 and J = 0.8000; P = 0.05

Chart 48

Chinese Gùshān (mesa) Pictogram vs. Piedras Marcadas Petroglyph



Gùshān pictogram
Image: www.zdic.net/hans/苦



Piedras Marcadas glyph

Part 1. Comparison of line strokes

<u>Gùshān pictogram line strokes</u>	<u>Piedras Marcadas glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (left top)	Vertical #1 (left top)	Yes
Vertical #2 (center top)	Vertical #2 (center top)	Yes
Vertical #3 (right top)	Vertical #3 (right top)	Yes
Vertical #4 (center)	Vertical #4 (center)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (middle)	Horizontal #2 (middle)	Yes
Arc up	Arc down	No
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Gùshān pictogram line stroke relations</u>	<u>Piedras Marcadas glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Junction - vertical #2 & horizontal #1	Junction - vertical #2 & horizontal #1	Yes
Connection - vertical #3 & horizontal #1	Connection - vertical #3 & horizontal #1	Yes
Junction - vertical #4 & horizontal #1	None	No
Intersection - vertical #4 & horizontal #2	Intersection - vertical #4 & horizontal #2	Yes
Junction - vertical #4 & horizontal #3	Junction - vertical #4 & curve-up	No
Connection - horizontal #3 & arc up (left)	Connection - horizontal #3 & arc down (left)	Yes
Connection - horizontal #3 & arc up (right)	Connection - horizontal #3 & arc down (right)	Yes

Calculation of Jaccard's Index for the comparison of the Gùshān pictogram with the Piedras Marcadas petroglyph

Total number of shared features M11 = 13

Total number of features N = 16

For Index of Similarity calculation:

M10 = 3; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{3 + 0 + 13} = \frac{13}{16} = 0.8125$$

For N = 16 and J = 0.8125; P < 0.001

Chart 49

Chinese Wǔ (five) Pictogram vs. Piedras Marcadas Petroglyph



Wǔ pictogram
Image: Frank Chalfant



Piedras Marcadas glyph

Part 1. Comparison of line strokes

<u>Wǔ pictogram line strokes</u>	<u>Piedras Marcadas glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Diagonal up	Diagonal up	Yes
Diagonal down	Diagonal down	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Wǔ pictogram line stroke relations</u>	<u>Piedras Marcadas glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - horizontal #1 & diagonal down	Connection - horizontal #1 & diagonal down	Yes
Connection - horizontal #1 & diagonal up	Connection - horizontal #1 & diagonal up	Yes
Connection - horizontal #2 & diagonal up	Connection - horizontal #2 & diagonal up	Yes
Connection - horizontal #2 & diagonal down	Connection - horizontal #2 & diagonal down	Yes
Intersection - diagonal up & diagonal down	Intersection - diagonal up & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Wǔ pictogram with the Piedras Marcadas petroglyph

Total number of shared features $M11 = 9$

Total number of features $N = 9$

For Index of Similarity calculation: $M10 = 0;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For $N = 9$ and $J = 1.0000;$ $P < 0.001$

Chart 50

Chinese Xiàn (to offer) Pictogram vs. Rinconada Canyon Petroglyph



Xiàn pictogram

Image: Adapted from Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

Xiàn pictogram line strokes

Dog pictogram
Head of tiger pictogram
Cauldron pictogram

Rinconada Canyon glyph line strokes

Dog pictogram
Head of tiger pictogram
Cauldron pictogram

Shared Feature

Yes
Yes
Yes

Part 2. Comparison of line stroke touch relations

Xiàn pictogram line stroke relations

Placement - dog pictogram on the left side
Placement - dog faces right
Placement - tiger head set atop cauldron
Placement - tiger head faces right

Rinconada Canyon glyph line stroke relations

Placement - dog pictogram on the left side
Placement - dog faces right
Placement - tiger head set atop cauldron
Placement - tiger head faces right

Shared Relation

Yes
Yes
Yes
Yes

Calculation of Jaccard's Index for the comparison of the Xiàn pictogram with the Rinconada Canyon petroglyph

Total number of shared features $M_{11} = 7$

Total number of features $N = 7$

For Index of Similarity calculation: $M_{10} = 0;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{7}{0 + 0 + 7} = \frac{7}{7} = 1.0000$$

For $N = 7$ and $J = 1.0000;$ $P = 0.001$

Chart 51

Chinese Gēng (7th Heavenly Stem) Pictogram vs. Rinconada Canyon Petroglyph



Gēng pictogram
Image: Frank Chalfant



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Gēng pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center)	Vertical #1 (center)	Yes
Vertical #2 (left)	Vertical #2 (left)	Yes
Vertical #3 (right)	Vertical #3 (right)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Diagonal down (top)	Curve left (top)	No
Diagonal up (top)	Curve right (top)	No

Part 2. Comparison of line stroke touch relations

<u>Gēng pictogram line stroke relations</u>	<u>Rinconada Canyon line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical #1 & horizontal #1	Intersection - vertical #1 & horizontal #1	No
Intersection - vertical #1 & horizontal #2	Intersection - vertical #1 & horizontal #2	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - horizontal #1 & vertical #3	Connection - horizontal #1 & vertical #3	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - horizontal #2 & vertical #3	Junction - horizontal #2 & vertical #3	Yes
Intersection - diagonal down & horizontal #1	Connection - curve left & vertical #1	No
Intersection - diagonal up & horizontal #1	Connection - curve right & vertical #1	No

Calculation of Jaccard's Index for the comparison of the Gēng pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 10

Total number of features N = 15

For Index of Similarity calculation:

M10 = 5;

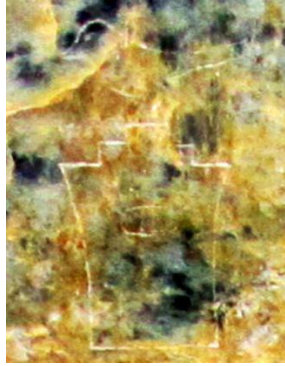
M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{5 + 0 + 10} = \frac{10}{15} = 0.6667$$

For N = 15 and J = 0.6667; P = 0.01

Chart 52

Chinese Liángzhǔ Emblem vs. Rinconada Canyon Petroglyph



Liángzhǔ Emblem
Image: Shanghai Museum



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Liángzhǔ Emblem line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Vertical #1 (left top)	Vertical #1 (left top)	Yes
Vertical #2 (right top)	Vertical #2 (right top)	Yes
Horizontal #2 (left middle)	Horizontal #2 (left middle)	Yes
Horizontal #3 (right middle)	Horizontal #3 (right middle)	Yes
Vertical #3 (left middle)	Vertical #3 (left bottom)	Yes
Vertical #4 (right middle)	Vertical #4 (right bottom)	Yes
Horizontal #4 (left bottom)	None	No
Horizontal #5 (right bottom)	None	No
Right curve (left bottom)	None	No
Left curve (right bottom)	None	No
Horizontal #6 (bottom)	Horizontal #4 (bottom)	Yes
Vertical bird leg	Vertical bird leg	Yes
Bird profile	Bird profile	Yes
Central oval	None	No

Part 2. Comparison of line stroke touch relations

<u>Liángzhǔ Emblem line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - horizontal #1 & vertical #1	Connection - horizontal #1 & vertical #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - vertical #1 & horizontal #2	Connection - vertical #1 & horizontal #2	Yes
Connection - vertical #2 & horizontal #3	Connection - vertical #2 & horizontal #3	Yes
Connection - horizontal #2 & vertical #3	Connection - horizontal #2 & vertical #3	Yes
Connection - horizontal #3 & vertical #4	Connection - horizontal #2 & vertical #3	Yes
Connection - vertical #3 & horizontal #4	None	No
Connection - vertical #4 & horizontal #5	None	No
Connection - horizontal #4 & right curve	None	No
Connection - horizontal #5 & left curve	None	No
Connection - right curve & horizontal #6	None	No
Connection - left curve & horizontal #6	None	No
Junction - vertical bird leg & horizontal #1	Junction - vertical bird leg & horizontal #1	Yes
Junction - vertical bird leg & bottom... of bird profile	Junction - vertical bird leg & bottom of bird profile	Yes
Placement - bird facing left	Placement - bird facing left	Yes
Placement - oval within outline	None	No

**Calculation of Jaccard's Index for the comparison of the Liángzhǔ Emblem
with the Rinconada Canyon petroglyph**

Total number of shared features $M_{11} = 19$

Total number of features $N = 31$

For Index of Similarity calculation: $M_{10} = 12;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{19}{12 + 0 + 19} = \frac{19}{31} = 0.6129$$

For $N = 31$ and $J = 0.6129;$ $P < 0.01$

Chart 53

Chinese Xún (10-day period) Pictogram vs. Rinconada Canyon Petroglyph



Xún Pictogram
Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Xún pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Circle (open at top right)	Circle (open at top right)	Yes
Diagonal down	Diagonal down	Yes
Diagonal up	Diagonal up	Yes

Part 2. Comparison of line stroke touch relations

<u>Xún pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - diagonal down & circle	Junction - diagonal down & circle	Yes
Junction - diagonal up & circle	Junction - diagonal up & circle	Yes

Calculation of Jaccard's Index for the comparison of the Xún pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 5

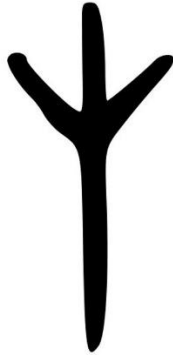
Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

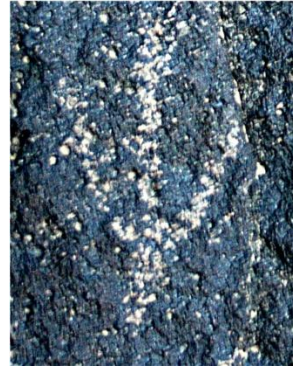
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For N = 5 and J = 1.0000; P = 0.01

Chart 54
Chinese Chè (plant) Pictogram vs. Piedras Marcadas glyph



Chè pictogram
 Image: Richard Sears



Piedras Marcadas glyph

Part 1. Comparison of line strokes

<u>Chè pictogram line strokes</u>	<u>Piedras Marcadas glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Diagonal down (left branch)	Diagonal down (left branch)	Yes
Diagonal up (right branch)	Diagonal up (right branch)	Yes

Part 2. Comparison of line stroke touch relations

<u>Chè pictogram line stroke relations</u>	<u>Piedras Marcadas glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – diagonal down & vertical	Junction - diagonal down & vertical	Yes
Junction – diagonal up & vertical	Junction - diagonal up & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Chè pictogram with the Piedras Marcadas petroglyph

Total number of shared features M11 = 5
 Total number of features N = 5
 For Index of Similarity calculation: M10 = 0; M01 = 0

Jaccard's Index (J) = $\frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.000$

For N = 5 and J = 1.0000; P = 0.01

Chart 55

Chinese Shé (tongue) Pictogram vs. Grapevine Canyon Petroglyph



Shé pictogram
Image: Wilder & Ingram



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Shé pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center line)	Vertical (center line)	Yes
Arc up #1	Horizontal #1 (top)	No
Horizontal #1 (middle)	Horizontal #2 (middle)	Yes
Horizontal #2 (bottom)	Horizontal #3 (bottom)	Yes
Arc up #2	Arc up	Yes

Part 2. Comparison of line stroke touch relations

<u>Shé pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical #1 & arc up #1	Junction - vertical #1 & horizontal #1	Yes
Intersection - vertical #1 & horizontal #1	Intersection - vertical #1 & horizontal #2	Yes
Junction - vertical #1 & horizontal #2	Junction - vertical #1 & horizontal #2	Yes
Junction - horizontal #2 & arc up #2 (left)	Connection - horizontal #3 & arc up (left)	No
Junction - horizontal #2 & arc up #2 (right)	Connection - horizontal #3 & arc up (right)	No

Calculation of Jaccard's Index for the comparison of the Shé pictogram with the Grapevine Canyon petroglyph

Total number of shared features $M11 = 7$

Total number of features $N = 10$

For Index of Similarity calculation: $M10 = 3; \quad M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{3 + 0 + 7} = \frac{7}{10} = 0.7000$$

For $N = 10$ and $J = 0.7000$; $P = 0.05$

Chart 56

Chinese Zhōng (middle) Pictogram vs. Grapevine Canyon Petroglyph



Zhōng pictogram
Image: L. Wieger



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Zhōng pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center line)	Curve right (center line)	No
Vertical #2 (left)	Vertical #2 (left)	Yes
Vertical #3 (right)	Vertical #3 (right)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #3 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōng pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical #1 & horizontal #1	Intersection - curve right & horizontal #1	Yes
Intersection - vertical #1 & horizontal #2	Intersection - curve right & horizontal #2	Yes
Connection - vertical #2 & horizontal #1 (left)	Connection - vertical #2 & horizontal #1 (left)	Yes
Connection - vertical #2 & horizontal #2 (left)	Connection - vertical #2 & horizontal #2 (left)	Yes
Connection - vertical #3 & horizontal #1 (right)	Connection - vertical #2 & horizontal #1 (right)	Yes
Connection - vertical #3 & horizontal #2 (right)	Connection - vertical #2 & horizontal #2 (right)	Yes

Calculation of Jaccard's Index for the comparison of the Zhōng pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 10

Total number of features N = 11

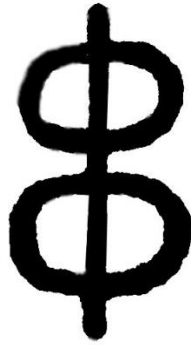
For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{1 + 0 + 10} = \frac{10}{11} = 0.9091$$

For N = 11 and J = 0.9091; P = 0.001

Chart 57

Chinese Chuàn (to string together) Pictogram vs. Sloan Canyon Petroglyph



Chuàn pictogram
Image: L. Wieger



Sloan Canyon glyph

Part 1. Comparison of line strokes

<u>Chuàn pictogram line strokes</u>	<u>Sloan Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Circle #1 (top)	Circle #1 (top)	Yes
Circle #2 (bottom)	Circle #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Chuàn pictogram line stroke relations</u>	<u>Sloan Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - circle #1 & vertical (top)	Intersection - circle #1 & vertical (top)	Yes
Intersection - circle #1 & vertical (top center)	Intersection - circle #1 & vertical (top center)	Yes
Intersection - circle #2 & vertical (bottom center)	Intersection - circle #2 & vertical (bottom center)	Yes
Intersection - circle #2 & vertical (bottom)	Intersection - circle #2 & vertical (bottom)	Yes

Calculation of Jaccard's Index for the comparison of the Chuàn pictogram with the Sloan Canyon petroglyph

Total number of shared features $M11 = 7$

Total number of features $N = 7$

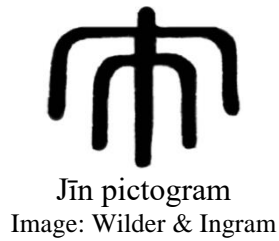
For Index of Similarity calculation: $M10 = 0;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{0 + 0 + 7} = \frac{7}{7} = 1.0000$$

For $N = 7$ and $J = 1.0000$; $P = 0.001$

Chart 58

Chinese Jīn (double cloth) Pictogram vs. Sloan Canyon Petroglyph



Part 1. Comparison of line strokes

<u>Jīn pictogram line strokes</u>	<u>Sloan Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Arc down #1	Arc down #1	Yes
Arc down #2	Arc down #2	Yes

Part 2. Comparison of line stroke touch relations

<u>Jīn pictogram line stroke relations</u>	<u>Sloan Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - arc down #1 & vertical (below top)	Intersection - arc down #1 & vertical (below top)	Yes
Intersection - arc down #2 & vertical (above center)	Intersection - arc down #2 & vertical (above center)	Yes

Calculation of Jaccard's Index for the comparison of the Jīn pictogram with the Sloan Canyon petroglyph

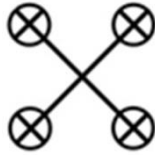
Total number of shared features M11 = 5
 Total number of features N = 5
 For Index of Similarity calculation: M10 = 0; M01 = 0

Jaccard's Index (J) = $\frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$

For N = 5 and $J = 1.0000$; P = 0.01

Chart 59

Chinese Léi (thunder) Pictogram vs. Grapevine Canyon Petroglyph



Léi pictogram
Image: Frank Chalfant



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Léi pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Diagonal up	Diagonal up	Yes
Diagonal down	Diagonal down	Yes
Circle #1 (top left)	Circle #1 (top left)	Yes
Circle #2 (top right)	Circle #2 (top right)	Yes
Circle #3 (bottom right)	Circle #3 (bottom right)	Yes
Circle #4 (bottom left)	Circle #4 (bottom left)	Yes
None	Circle #5 (cartouche)	No
X within circle #1-4	Filled-in circle #1-4	No x 4

Part 2. Comparison of line stroke touch relations

<u>Léi pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - diagonal up & diagonal down	Intersection - diagonal up & diagonal down	Yes
Connection - circle #1 & diagonal down (top)	Connection - circle #1 & diagonal down (top)	Yes
Connection - circle #2 & diagonal up (top)	Connection - circle #2 & diagonal up (top)	Yes
Connection - circle #3 & diagonal down (bottom)	Connection - circle #3 & diagonal down (bottom)	Yes
Connection - circle #4 & diagonal up (bottom)	Connection - circle #4 & diagonal up (bottom)	Yes
Placement - X within circle #1	Placement - fill-in of circle #1	Yes
Placement - X within circle #2	Placement - fill-in of circle #2	Yes
Placement - X within circle #3	Placement - fill-in of circle #3	Yes
Placement - X within circle #4	Placement - fill-in of circle #4	Yes
None	Placement - circle #5 as cartouche	No

Calculation of Jaccard's Index for the comparison of the Léi pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 15

Total number of features N= 21

For Index of Similarity calculation: M10 = 4; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{4 + 2 + 15} = \frac{15}{21} = 0.7143$$

For N = 21 and J = 0.7143; P = 0.001

Chart 60

Chinese Wáng (string of beads) Pictogram vs. Sloan Canyon Petroglyph



Wáng pictogram
Image: Frank Chalfant



Sloan Canyon glyph

Part 1. Comparison of line strokes

<u>Wáng pictogram line strokes</u>	<u>Sloan Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Dot #1 (top)	Dot #1 (top)	Yes
Dot #2 (middle)	Dot #2 (middle)	Yes
Dot #3 (bottom)	Dot #3 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Wáng pictogram line stroke relations</u>	<u>Sloan Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - dot #1 & vertical (top)	Intersection - dot #1 & vertical (top)	No
Intersection - dot #2 & vertical (middle)	Intersection - dot #2 & vertical (middle)	Yes
Connection - dot #3 & vertical (bottom)	Intersection - dot #3 & vertical (bottom)	No

Calculation of Jaccard's Index for the comparison of the Wáng pictogram with the Sloan Canyon petroglyph

Total number of shared features M11 = 5

Total number of features N = 7

For Index of Similarity calculation: M10 = 2; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{2 + 0 + 5} = \frac{5}{7} = 0.7143$$

For N = 7 and J = 0.7143; P = 0.05

Chart 61 Chinese Mù (tree) Pictogram vs. Sloan Canyon Petroglyph



Mù pictogram
Image: Richard Sears



Sloan Canyon glyph

Part 1. Comparison of line strokes

Mù pictogram line strokes

Vertical (central trunk)
Diagonal down (left branch)
Diagonal up (right branch)
Diagonal up (left root)
Diagonal down (right root)

Sloan Canyon glyph line strokes

Vertical (central trunk)
Diagonal down (left branch)
Curve up (right branch)
Diagonal up (left root)
Diagonal down (right root)

Shared Feature

Yes
Yes
No
Yes
Yes

Part 2. Comparison of line stroke touch relations

Mù pictogram line stroke relations

Junction - diagonal down (left branch) & ...
vertical above center
Junction - diagonal up (right branch) & ...
vertical above center
Junction - diagonal up (left root) & ...
vertical below center
Junction - diagonal down (right root) & ...
vertical below center

Sloan Canyon glyph line stroke relations

Junction - diagonal down (left branch) & ...
vertical above center
Junction - curve up (right branch) & ...
vertical above center
Junction - diagonal up (left root) & ...
vertical below center
Junction - diagonal down (right root) & ...
vertical below center

Shared Relation

Yes
Yes
Yes
Yes

Calculation of Jaccard's Index for the comparison of the Mù pictogram with the Sloan Canyon petroglyph

Total number of shared features $M11 = 8$

Total number of features $N = 9$

For Index of Similarity calculation: $M10 = 1$; $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{1 + 0 + 8} = \frac{8}{9} = 0.8889$$

For $N = 9$ and $J = 0.8889$; $P = 0.001$

Chart 62

Chinese Fù (hill) Pictogram vs. Piedras Marcadas Petroglyph



Fù pictogram
Image: Edoardo Fazzioli



Piedras Marcadas glyph

Part 1. Comparison of line strokes

<u>Fù pictogram line strokes</u>	<u>Piedras Marcadas glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Diagonal down #1 (top)	Diagonal down #1 (top)	Yes
Diagonal up #1 (top)	Diagonal up #1 (top)	Yes
Diagonal down #2 (middle)	Diagonal down #2 (middle)	Yes
Diagonal up #2 (middle)	Diagonal up #2 (middle)	Yes
Diagonal down #3 (bottom)	Right curve	No
Diagonal up #3 (bottom)	None	No

Part 2. Comparison of line stroke touch relations

<u>Fù pictogram line stroke relations</u>	<u>Piedras Marcadas glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - diagonal down #1 & vertical	Junction - diagonal down #1 & vertical	No
Connection - diagonal down #1 & ... diagonal up #1	Connection - diagonal down #1 & ... diagonal up #1	Yes
Junction - diagonal up #1 & vertical	Junction - diagonal up #1 & vertical	Yes
Junction - diagonal down #2 & vertical	Junction - diagonal down #2 & vertical	Yes
Connection - diagonal down #2 & ... diagonal up #2	Connection - diagonal down #2 & ... diagonal up #2	Yes
Junction - diagonal up #2 & vertical	Connection - diagonal up #2 & vertical	Yes
Junction - diagonal down #3 & vertical	Junction - right curve (top) & vertical	Yes
Connection - diagonal down #3 & ... diagonal up #3	None	No
Junction - diagonal up #3 & vertical	Junction - right curve (bottom) & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Fù pictogram with the Piedras Marcadas petroglyph

Total number of shared features M11 = 12

Total number of features N = 16

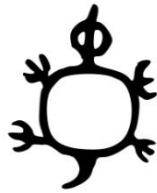
For Index of Similarity calculation: M10 = 4; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{12}{4 + 0 + 12} = \frac{12}{16} = 0.7500$$

For N = 16 and J = 0.7500; P = 0.001

Chart 63

Chinese Guī (turtle) Pictogram vs. Rinconada Canyon Petroglyph



Guī pictogram
Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Guī pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Circle (body)	Circle (body)	Yes
Trifid forefoot (left)	Trifid forefoot (left)	Yes x 3 lines
Trifid forefoot (right)	Trifid forefoot (right)	Yes x 3 lines
Trifid hind foot (left)	Trifid hind foot (left)	Yes x 3 lines
Trifid hind foot (right)	Trifid hind foot (right)	Yes x 3 lines
Curve right (tail)	Curve right (tail)	Yes
Line#1 (foreleg left)	Line#1 (foreleg left)	Yes
None	Line#2 (foreleg right)	No
Line#2 (hind leg left)	Line#3 (hind leg left)	Yes
Line#3 (hind leg right)	Line#4 (hind leg right)	Yes
Vertical (head line)	None	No
Circle (head)	Circle (head)	Yes
None	Vertical (shell spine)	No

Part 2. Comparison of line stroke touch relations

<u>Guī pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - forefoot (left) & line (foreleg left)	Junction - forefoot (left) & line (foreleg left)	Yes
Junction - forefoot (right) & circle (body)	Junction - forefoot (right) & line (foreleg right)	No
Junction - hind foot (left) & line (hind leg left)	Junction - hind foot (left) & line (hind leg left)	Yes
Junction - hind foot (right) & line (hind leg right)	Junction - hind foot (right) & line (hind leg right)	Yes
Junction - line#1 (forefoot left) & circle ... @ 315 degrees	Junction - line#1 (foreleg left) & circle ... @ 315 degrees	Yes
None	Junction - line#2 & circle @ 45 degrees	No
Junction - line#2 & circle @ 225 degrees	Junction - line#3 & circle @ 225 degrees	Yes
Junction - line#3 & circle @ 135 degrees	Junction - line#4 & circle @ 135 degrees	Yes
Junction - curve left (tail) & circle @ 180 degrees	Junction - curve left (tail) & circle @ 180 degrees	Yes
Junction - vertical (head line) & circle @ 0 degrees	Junction - circle (head) & circle @ 0 degrees	Yes
Intersection - circle (head) & vertical (head line)	None	No
None	Placement - vertical in center of circle (body)	No

Calculation of Jaccard's Index for the comparison of the Guī pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 26

Total number of features N = 33

For Index of Similarity calculation: M10 = 4; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{26}{4 + 3 + 26} = \frac{26}{33} = 0.7879$$

For N = 33 and J = 0.7879; P < 0.001

Chart 64
Chinese Yāo (small) Pictogram vs. St. Johns Petroglyph



Yāo pictogram
 Image: Frank Chalfant



St. Johns glyph

Part 1. Comparison of line strokes

<u>Yāo pictogram line strokes</u>	<u>St. Johns glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (top)	Vertical #1 (top)	Yes
Vertical #2 (center)	Vertical #2 (center)	Yes
Circle #1 (top)	Circle #1 (top)	Yes
Circle #2 (bottom)	Circle #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Yāo pictogram line stroke relations</u>	<u>St. Johns glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & circle #1	Connection - vertical #1 & circle #1	Yes
Connection - circle #1 & vertical #2	Connection - circle #1 & vertical #2	Yes
Connection - vertical #2 & circle #2	Connection - vertical #2 & circle #2	Yes

Calculation of Jaccard's Index for the comparison of the Yāo pictogram with the St. Johns petroglyph

Total number of shared features M11 = 7

Total number of features N = 7

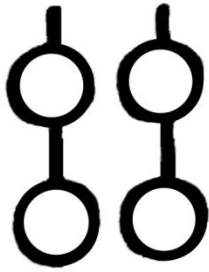
For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{0 + 0 + 7} = \frac{7}{7} = 1.0000$$

For N = 7 and J = 1.0000; P = 0.001

Chart 65

Chinese Yū (very small) Pictogram vs. Piedras Marcadas Petroglyph



Yū pictogram
Image: Frank Chalfant



Piedras Marcadas glyph

Part 1. Comparison of line strokes

Yū pictogram line strokes

Vertical #1 (top - left & right figures)
 Vertical #2 (center - left & right figures)
 Circle #1 (top - left & right figures)
 Circle #2 (bottom - left & right figures)
 None
 None

Piedras Marcadas glyph line strokes

Vertical #1 (top - left and right figures)
 Vertical #2 (center - left & right figures)
 Circle #1 (top - left & right figures)
 Circle #2 (bottom - left & right figures)
 Circle #1 (filled-in)
 Circle #2 (filled-in - left only)

Shared Feature

Yes x2
 Yes x2
 Yes x2
 Yes x2
 No x 2
 No

Part 2. Comparison of line stroke touch relations

Yū pictogram line stroke relations

Connection - vertical #1 & circle #1
 Connection - circle #1 & vertical #2
 Connection - vertical #2 & circle #2

Piedras Marcadas glyph line stroke relations

Connection - vertical #1 & circle #1
 Connection - circle #1 & vertical #2
 Connection - vertical #2 & circle #2

Shared Relation

Yes x2
 Yes x2
 Yes x2

Calculation of Jaccard's Index for the comparison of the Yū pictogram with the Piedras Marcadas petroglyph

Total number of shared features M11 = 14

Total number of features N = 17

For Index of Similarity calculation: M10 = 0; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{14}{0 + 3 + 14} = \frac{14}{17} = 0.8235$$

For N = 17 and J = 0.8235; P < 0.001

Chart 66

Chinese Chuàn (to string together) Pictogram vs. Little Colorado River Petroglyph



Chuàn pictogram
Image: Richard Sears



Little Colorado River glyph

Part 1. Comparison of line strokes

<u>Chuàn pictogram line strokes</u>	<u>Little Colorado glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Oval #1 (top)	Oval #1 (top)	Yes
Oval #2 (bottom)	Oval #2 (bottom)	Yes
None	Dot	No

Part 2. Comparison of line stroke touch relations

<u>Chuàn pictogram line stroke relations</u>	<u>Little Colorado glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - oval #1 & vertical (top)	Intersection - oval #1 & vertical (top)	Yes
Intersection - oval #1 & vertical (top center)	Intersection - oval #1 & vertical (top center)	Yes
Intersection - oval #2 & vertical (bottom center)	Intersection - oval #2 & vertical (bottom center)	Yes
Intersection - oval #2 & vertical (bottom)	Intersection - oval #2 & vertical (bottom)	Yes
None	Connection - dot & vertical (top)	No

Calculation of Jaccard's Index for the comparison of the Chuàn pictogram with the Little Colorado River petroglyph

Total number of shared features M11 = 7

Total number of features N = 9

For Index of Similarity calculation: M10 = 0; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{0 + 2 + 7} = \frac{7}{9} = 0.7778$$

For N = 9 and J = 0.7778; P = 0.01

Chart 67
Chinese Liáng (good) Pictogram vs. Lyman Lake Petroglyph



Liáng pictogram
 Image: Richard Sears



Lyman Lake glyph

Part 1. Comparison of line strokes

<u>Liáng pictogram line strokes</u>	<u>Lyman Lake glyph line strokes</u>	<u>Shared Feature</u>
Circle	Circle	Yes
Curve down left #1 (top)	Diagonal up #1 (top)	No
Curve down left #2 (top)	Diagonal up #2 (top)	No
Curve up right #1 (bottom)	Curve up right #1 (bottom)	Yes
Curve up right #2 (bottom)	Curve up right #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Liáng pictogram line stroke relations</u>	<u>Lyman Lake glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - circle & curve down left #1	Junction - circle & diagonal up #1	Yes
Junction - circle & curve down left #2	Junction - circle & diagonal up #2	Yes
Junction - circle & curve up right #1	Junction - circle & curve up right #1	Yes
Junction - circle & curve up right #2	Junction - circle & curve up right #2	Yes
Placement - parallel curve down left #1&2	Placement - parallel diagonal up #1&2	Yes
Placement - parallel curve up right #1&2	Placement - parallel curve up right #1&2	Yes
Placement - top curve down left #1&2	Placement - right diagonals #1&2	No
Placement - bottom curve up right #1&2	Placement - bottom curve up right #1&2	Yes

Calculation of Jaccard's Index for the comparison of the Liáng pictogram with the Lyman Lake petroglyph

Total number of shared features M11 = 10

Total number of features N = 13

For Index of Similarity calculation: M10 = 3; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{3 + 0 + 10} = \frac{10}{13} = 0.7692$$

For N = 13 and J = 0.7692; P < 0.01

Chart 68

Chinese Huí (to return) Pictogram vs. Arizona Ranch Petroglyph



Huí pictogram
Image: L. Wieger



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Huí pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (interior right)	Vertical #1 (interior right)	Yes
Vertical #2 (interior left)	Vertical #2 (interior left)	Yes
Vertical #3 (exterior right)	Vertical #3 (exterior right)	Yes
Vertical #4 (exterior left)	Vertical #4 (exterior left)	Yes
Horizontal #1 (interior top)	Horizontal #1 (interior top)	Yes
Horizontal #2 (interior bottom)	Horizontal #2 (interior bottom)	Yes
Horizontal #3 (exterior top)	Horizontal #3 (exterior top)	Yes
Horizontal #4 (exterior bottom)	Horizontal #4 (exterior bottom)	Yes
Curve-down right (bottom)	Curve-down right (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Huí pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - vertical #2 & horizontal #2	Connection - vertical #2 & horizontal #2	Yes
Connection - horizontal #2 & vertical #3	Connection - horizontal #2 & vertical #3	Yes
Connection - vertical #3 & horizontal #3	Connection - vertical #3 & horizontal #3	Yes
Connection - horizontal #3 & vertical #4	Connection - horizontal #3 & vertical #4	Yes
Connection - vertical #4 & horizontal #4	Connection - vertical #4 & horizontal #4	Yes
Connection - horizontal #4 &... curve-down right	Connection - horizontal #4 &... curve-down right	Yes

Calculation of Jaccard's Index for the comparison of the Huí pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 17

Total number of features N = 17

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{17}{0 + 0 + 17} = \frac{17}{17} = 1.0000$$

For N = 17 and J = 1.0000; P < 0.001

Chart 69

Chinese Jiū (join) Pictogram vs. Arizona Ranch Petroglyph



Jiū pictogram
Image: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Jiū pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (right)	Vertical #1 (right)	Yes
Horizontal #1	Horizontal #1 (bottom)	Yes
Vertical #2 (top middle)	Vertical #2 (middle left)	Yes
Diagonal down #1 (top)	Vertical #3 (middle right)	No
Diagonal up	Horizontal #2 (top)	No
Diagonal down #2 (bottom)	Vertical #4 (left)	No
Vertical #3 (bottom)	None	No

Part 2. Comparison of line stroke touch relations

<u>Jiū pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - diagonal down #1 & diagonal up	Connection - vertical #3 & horizontal #2	Yes
Connection - diagonal up & diagonal down #2	Connection - horizontal #2 & vertical #4	Yes
Connection - diagonal down #2 & vertical #3	None	No
Placement - interlocking hooks	Placement - interlocking hooks	Yes

Calculation of Jaccard's Index for the comparison of the Jiū pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 8

Total number of features N = 13

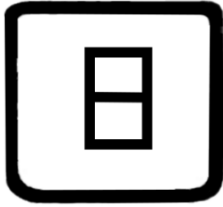
For Index of Similarity calculation: M10 = 5; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{5 + 0 + 8} = \frac{8}{13} = 0.6154$$

For N = 13 and J = 0.6154; P = 0.05

Chart 70

Combined Chinese Wéi and Rì Pictograms (City of the Sun) vs. Arizona Ranch Petroglyph



Wéi (exterior) & Rì (interior) pictograms
Images: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of exterior line strokes

<u>Wéi pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top outline)	Horizontal #1 (top outline)	Yes
Horizontal #2 (bottom outline)	Horizontal #2 (bottom outline)	Yes
Vertical #1 (left outline)	Vertical #1 (left outline)	Yes
Vertical #2 (right outline)	Vertical #2 (right outline)	Yes

Part 2. Comparison of exterior line stroke touch relations

<u>Wéi pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - vertical #2 & horizontal #2	Connection - vertical #2 & horizontal #2	Yes
Connection - horizontal #2 & vertical #1	Connection - horizontal #2 & vertical #1	Yes

Part 3. Comparison of interior line strokes

<u>Rì pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #3 (top interior)	Horizontal #3 (top interior)	Yes
Horizontal #4 (middle interior)	Horizontal #4 (middle interior)	Yes
Horizontal #5 (bottom interior)	Horizontal #5 (bottom interior)	Yes
Vertical #3 (left interior)	Vertical #3 (left interior)	Yes
Vertical #4 (right interior)	Vertical #4 (right interior)	Yes
None	Vertical #5 (bottom interior)	No

Part 4. Comparison of interior line stroke touch relations

<u>Rì pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #3 & horizontal #3	Connection - vertical #3 & horizontal #3	Yes
Connection - horizontal #3 & vertical #4	Connection - horizontal #3 & vertical #4	Yes
Connection - vertical #4 & horizontal #5	Connection - vertical #4 & horizontal #5	Yes
Connection - horizontal #5 & vertical #3	Connection - horizontal #5 & vertical #3	Yes
Junction - vertical #3 & horizontal #4	Junction - vertical #3 & horizontal #4	Yes
Junction - horizontal #4 & vertical #4	Junction - horizontal #4 & vertical #4	Yes
None	Connection - horizontal #5 & vertical #5	No

Calculation of Jaccard's Index for the comparison of the combined Wéi & Rì pictograms with the Arizona Ranch petroglyph

Total number of shared features M11 = 19

Total number of features N = 21

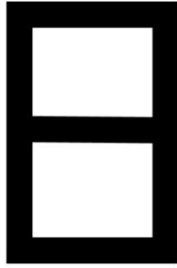
For Index of Similarity calculation: M10 = 0; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{19}{0 + 2 + 19} = \frac{19}{21} = 0.9048$$

For N = 21 and J = 0.9048; P < 0.001

Chart 71

Chinese Rì (sun) Pictogram vs. Arizona Ranch Petroglyph



Rì pictogram
Image: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Rì pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Relation</u>
Horizontal #3 (top interior)	Horizontal #3 (top interior)	Yes
Horizontal #4 (middle interior)	Horizontal #4 (middle interior)	Yes
Horizontal #5 (bottom interior)	Horizontal #5 (bottom interior)	Yes
Vertical #3 (left interior)	Vertical #3 (left interior)	Yes
Vertical #4 (right interior)	Vertical #4 (right interior)	Yes
None	Vertical #5 (bottom interior)	No

Part 2. Comparison of line stroke touch relations

<u>Rì pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Feature</u>
Connection - vertical #3 & horizontal #3	Connection - vertical #3 & horizontal #3	Yes
Connection - horizontal #3 & vertical #4	Connection - horizontal #3 & vertical #4	Yes
Connection - vertical #4 & horizontal #5	Connection - vertical #4 & horizontal #5	Yes
Connection - horizontal #5 & vertical #3	Connection - horizontal #5 & vertical #3	Yes
Junction - vertical #3 & horizontal #4	Junction - vertical #3 & horizontal #4	Yes
Junction - horizontal #4 & vertical #4	Junction - horizontal #4 & vertical #4	Yes
None	Connection - horizontal #5 & vertical #5	No

Calculation of Jaccard's Index for the comparison of the Rì pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 11

Total number of features N = 13

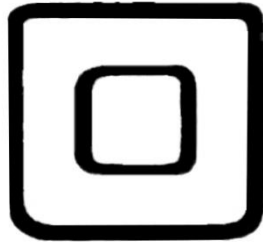
For Index of Similarity calculation: M10 = 0; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 2 + 11} = \frac{11}{13} = 0.8462$$

For N = 13 and J = 0.8462; P = 0.001

Chart 72

Chinese Huí (to return; City of Song) Pictogram vs. Arizona Ranch Glyph



Huí pictogram
Image: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Huí pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (exterior left)	Vertical #1 (exterior left)	Yes
Vertical #2 (exterior right)	Vertical #2 (exterior right)	Yes
Horizontal #1 (exterior top)	Horizontal #1 (exterior top)	Yes
Horizontal #2 (exterior bottom)	Horizontal #2 (exterior bottom)	Yes
Vertical #3 (interior left)	Vertical #3 (interior left)	Yes
Vertical #4 (interior right)	Vertical #4 (interior right)	Yes
Horizontal #3 (interior top)	Horizontal #3 (interior top)	Yes
Horizontal #4 (interior bottom)	Horizontal #4 (interior bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Huí pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - vertical #2 & horizontal #2	Connection - vertical #1 & horizontal #2	Yes
Connection - horizontal #2 & vertical #3	Connection - horizontal #2 & vertical #3	Yes
Connection - vertical #3 & horizontal #3	Connection - vertical #3 & horizontal #3	Yes
Connection - horizontal #3 & vertical #4	Connection - horizontal #3 & vertical #4	Yes
Connection - vertical #4 & horizontal #4	Connection - vertical #4 & horizontal #4	Yes
Connection - horizontal #4 & vertical #4	Connection - horizontal #4 & vertical #4	Yes

Calculation of Jaccard's Index for the comparison of the Huí pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 16

Total number of features N = 16

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{16}{0 + 0 + 16} = \frac{16}{16} = 1.0000$$

For N = 16 and J = 1.0000; P < 0.001

Chart 73

Chinese Chǐ (teeth) Pictogram vs. Arizona Ranch Petroglyph



Chǐ pictogram
Image: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Chǐ pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (exterior left)	Vertical #1 (exterior left)	Yes
Vertical #2 (exterior right)	Vertical #2 (exterior right)	Yes
Horizontal #1 (exterior top)	Horizontal #1 (exterior top)	Yes
Horizontal #2 (exterior bottom)	Horizontal #2 (exterior bottom)	Yes
Vertical #3 (interior left top)	Vertical #3 (interior left top)	Yes
Vertical #4 (interior center top)	Vertical #4 (interior center top)	Yes
Vertical #5 (interior right top)	Vertical #5 (interior right top)	Yes
Vertical #6 (interior left bottom)	Vertical #6 (interior left bottom)	Yes
Vertical #7 (interior center bottom)	Vertical #7 (interior left center bottom)	Yes
None	Vertical #8 (interior right center bottom)	No
Vertical #8 (interior right bottom)	Vertical #9 (interior right bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Chǐ pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	No
Connection - vertical #1 & horizontal #2	Connection - vertical #1 & horizontal #2	Yes
Connection - horizontal #2 & vertical #2	Connection - horizontal #2 & vertical #2	Yes
Junction - vertical #2 & horizontal #1	Connection - vertical #2 & horizontal #1	No
Junction - vertical #3 & horizontal #1	Junction - vertical #3 & horizontal #1	Yes
Junction - vertical #4 & horizontal #1	Junction - vertical #4 & horizontal #1	Yes
Junction - vertical #5 & horizontal #1	Junction - vertical #5 & horizontal #1	Yes
Junction - vertical #6 & horizontal #2	Junction - vertical #6 & horizontal #2	Yes
Junction - vertical #7 & horizontal #2	Junction - vertical #7 & horizontal #2	Yes
None	Junction - vertical #8 & horizontal #2	No
Junction - vertical #8 & horizontal #2	Junction - vertical #9 & horizontal #2	Yes

Calculation of Jaccard's Index for the comparison of the Chǐ pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 18

Total number of features N = 22

For Index of Similarity calculation: M10 = 2; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{18}{2 + 2 + 18} = \frac{18}{22} = 0.8182$$

For N = 22 and J = 0.8182; P < 0.001

Chart 74

Chinese Fán (sail or wind) Pictogram vs. Sloan Canyon Petroglyph



Fán pictogram

Image: Bernhard Karlgren



Sloan Canyon glyph

Part 1. Comparison of line strokes

<u>Fán pictogram line strokes</u>	<u>Sloan Canyon glyph line strokes</u>	<u>Shared Feature</u>
Right curve	Right curve	Yes
Vertical	Vertical	Yes
Horizontal #1(top)	Horizontal	Yes
Horizontal #2 (bottom)	Diagonal down	No

Part 2. Comparison of line stroke touch relations

<u>Fán pictogram line stroke relations</u>	<u>Sloan Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - right curve & horizontal #1	Junction - right curve & horizontal	Yes
Junction - right curve & horizontal #2	Junction - right curve & diagonal down	Yes
Junction - vertical & horizontal #1	Junction - vertical & horizontal	Yes
Junction - vertical & horizontal #2	Junction - vertical & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Fán pictogram with the Sloan Canyon petroglyph

Total number of shared features $M11 = 7$

Total number of features $N = 8$

For Index of Similarity calculation:

$M10 = 1;$

$M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{1 + 0 + 7} = \frac{7}{8} = 0.8750$$

For $N = 8$ and $J = 0.8750;$ $P = 0.01$

Chart 75

Chinese Jié (kneel) Pictogram vs. Rinconada Canyon Petroglyph



Chinese Jié Pictogram
Image: Edoardo Fazzioli



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Jié pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Left curve #1 (top left)	Vertical (top left)	No
Right curve (top right)	Right curve (top right)	Yes
Left curve #2 (middle)	Left curve (middle)	Yes
Arc down (bottom)	Arc down (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Jié pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - left curve #1 & right curve	Connection - vertical & right curve	No
Connection - right curve & left curve #2	Connection - right curve & left curve	Yes
Connection - left curve #2 & arc down	Connection - left curve & arc down	Yes

Calculation of Jaccard's Index for the comparison of the Jié pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 5

Total number of features N = 7

For Index of Similarity calculation: M10 = 2; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{2 + 0 + 5} = \frac{5}{7} = 0.7143$$

For N = 7 and J = 0.7143; P = 0.05

Chart 76
Chinese Xún (10 days or 10 years) vs. Arizona Ranch Petroglyph



Chinese Xún Pictogram
Image: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Xún pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Diagonal down #1	Diagonal down #1	Yes
Right curve	Right curve	Yes
Diagonal down #2	Diagonal down #2	Yes

Part 2. Comparison of line stroke touch relations

<u>Xún pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - diagonal down #1 & right curve	Junction - diagonal down #1 & right curve	Yes
Connection - right curve & diagonal down #2	Connection - right curve & diagonal down #2	Yes

Calculation of Jaccard's Index for the comparison of the Xún pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 5

Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For N = 5 and J = 1.0000; P = 0.01

Chart 77
Chinese Yǐn (secluded) Pictogram vs. Arizona Ranch Petroglyph



Chinese Yǐn Pictogram
 Image: Frank Chalfant



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Yǐn pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1	Vertical	Yes
Horizontal	Horizontal	Yes
Vertical #2	None	No

Part 2. Comparison of line stroke touch relations

<u>Yǐn pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal	Connection - vertical & horizontal	Yes
Connection - horizontal & vertical #2	None	No

Calculation of Jaccard's Index for the comparison of the Yǐn pictogram with the Arizona Ranch petroglyph

Total number of shared features $M11 = 3$

Total number of features $N = 5$

For Index of Similarity calculation: $M10 = 2;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{3}{2 + 0 + 3} = \frac{3}{5} = 0.6000$$

For $N = 5$ and $J = 0.6000$;

$P =$ undefined due to insufficient data

Chart 78
Chinese Yǐ (second) Pictogram vs. Arizona Ranch Petroglyph



Chinese Yǐ Pictogram
 Image: Frank Chalfant



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Yǐ pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1	Horizontal #1	Yes
Diagonal up	Diagonal up	Yes
Horizontal #2	Horizontal #2	Yes

Part 2. Comparison of line stroke touch relations

<u>Yǐ pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - horizontal #1 & diagonal up	Connection - horizontal #1 & diagonal up	Yes
Connection - diagonal up & horizontal #2	Connection - diagonal up & horizontal #2	Yes

Calculation of Jaccard's Index for the comparison of the Yǐ pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 5

Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For N = 5 and J = 1.0000; P = 0.01

Chart 79

Chinese Yī (one) Pictogram vs. Arizona Ranch Petroglyph



Chinese Yī Pictogram
Image: Frank Chalfant



Arizona Ranch glyph

Part 1. Comparison of line strokes

Yī pictogram line strokes

Horizontal

Arizona Ranch glyph line strokes

Horizontal

Shared Feature

Yes

Part 2. Comparison of line stroke touch relations

Yī pictogram line stroke relations

None

Arizona Ranch glyph line stroke relations

None

Shared Relation

NA

Calculation of Jaccard's Index for the comparison of the Yī pictogram with the Arizona Ranch petroglyph

Total number of shared features: $M11 = 1$

Total number of features: $N = 1$

For Index of Similarity calculation: $M10 = 0$; $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{1}{0 + 0 + 1} = \frac{1}{1} = 1.0000$$

For $N = 1$ and $J = 1.0000$; $P = \text{undefined due to insufficient data}$

Chart 80

Chinese Gōng (bow) Pictogram vs. Grapevine Canyon Petroglyph



Gōng pictogram
Image: Richard Sears



Grapevine Canyon paired glyphs
Left: Gōng (bow) & Right: Yīn (to pull)

Part 1. Comparison of line strokes

<u>Gōng pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
None	Vertical #1	No
Horizontal	Horizontal	Yes
Vertical	Vertical #2	Yes
Left curve	Left curve	Yes
Diagonal up	Vertical #3	No
Diagonal down	Diagonal down	Yes

Part 2. Comparison of line stroke touch relations

<u>Gōng pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
None	Connection - vertical #1 & horizontal	No
Connection - horizontal & vertical	Connection - horizontal & vertical #2	Yes
Connection - vertical & left curve	Connection - vertical #2 & left curve	Yes
Connection - left curve & diagonal up	Connection - left curve & vertical #3	Yes
Connection - diagonal up & diagonal down	Connection - vertical #3 & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Gōng pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 8

Total number of features N = 11

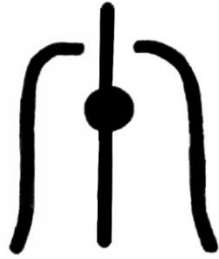
For Index of Similarity calculation: M10 = 1; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{1 + 2 + 8} = \frac{8}{11} = 0.7273$$

For N = 11 and J = 0.7273; P = 0.01

Chart 81

Chinese Wǔ (noon) Pictogram vs. Grapevine Canyon Petroglyph



Wǔ pictogram
Image: Frank Chalfant



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Wǔ pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Curve-down (left)	Curve-down (left)	Yes
Curve-down (right)	Curve-down (right)	Yes
Dot	Dot	Yes

Part 2. Comparison of line stroke touch relations

<u>Wǔ pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - dot & vertical	Intersection - dot & vertical	Yes
Placement - curve-down left to left of vertical	Intersection - curve-down left & vertical	No
Placement - curve-down right to right of vertical	Intersection - curve-down right & vertical	No
Placement - dot above center of enclosed vertical	Placement - dot above center of enclosed vertical	Yes

Calculation of Jaccard's Index for the comparison of the Wǔ pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 6
 Total number of features N = 8
 For Index of Similarity calculation: M10 = 2; M01 = 0

Jaccard's Index (J) = $\frac{M11}{M10 + M01 + M11} = \frac{6}{2 + 0 + 6} = \frac{6}{8} = 0.7500$

For N = 8 and $J = 0.7500$; P = 0.05

Chart 82
Chinese Mù (tree) Pictogram vs. Arizona Ranch Petroglyph



Mù pictogram
 Image: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Diagonal down #1 (left branch)	Diagonal down #1 (left branch)	Yes
Diagonal up #1 (right branch)	Diagonal up #1 (right branch)	Yes
Diagonal up #2 (left root)	Diagonal up #2 (left root)	Yes
Diagonal down #2 (right root)	Diagonal down #2 (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - diagonal down #1 & vertical	Junction - diagonal down #1 & vertical	Yes
Junction - diagonal up #1 & vertical	Junction - diagonal up #1 & vertical	Yes
Junction - diagonal up #2 & vertical	Junction - diagonal up #2 & vertical	Yes
Junction - diagonal down #2 & vertical	Junction - diagonal down #2 & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Mù pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 9

Total number of features N = 9

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For N = 9 and J = 1.0000; P < 0.001

Chart 83

Chinese Mén (door) Pictogram vs. Little Lake Pictograph



Mén Pictogram

Image: Edoardo Fazzioli



Little Lake glyph



Enhanced image

Part 1. Comparison of line strokes

Note: The broken off rectangular side-by-side images drawn beneath the Little Lake Mén glyph modify the meaning of the overall symbol. These items are unrelated to the basic Chinese script symbol of Mén and are not included in this analysis.

Mén pictogram line strokes

Horizontal #1 (top left)
Horizontal #2 (middle left)
Horizontal #3 (bottom left)
Vertical #1 (far left)
Vertical #2 (middle left)
Horizontal #4 (top right)
Horizontal #5 (middle right)
Horizontal #6 (bottom right)
Vertical #3 (middle right)
Vertical #4 (far right)

Little Lake glyph line strokes

Horizontal #1 (top left)
Horizontal #2 (middle left)
Horizontal #3 (bottom left)
Vertical #1 (far left)
Vertical #2 (middle left)
Horizontal #4 (top right)
Horizontal #5 (middle right)
Horizontal #6 (bottom right)
Vertical #3 (middle right)
Vertical #4 (far right)

Shared Feature

Yes
Yes
Yes
Yes
Yes
Yes
Yes
Yes
Yes
Yes

Part 2. Comparison of line stroke touch relations

Mén pictogram line stroke relations

Connection - horizontal #1 & vertical #1
None
Junction - horizontal #2 & vertical #1
Junction - horizontal #2 & vertical #2
Junction - horizontal #3 & vertical #1
Connection - horizontal #3 & vertical #2
None
Connection - horizontal #4 & vertical #4
Junction - horizontal #5 & vertical #3
Junction - horizontal #5 & vertical #4
Connection - horizontal #6 & vertical #3
Junction - horizontal #6 & vertical #4

Little Lake glyph line stroke relations

None
Connection - horizontal #1 & vertical #2
Connection - horizontal #2 & vertical #1
Junction - horizontal #2 & vertical #2
Junction - horizontal #3 & vertical #1
Connection - horizontal #2 & vertical #2
Connection - horizontal #4 & vertical #3
None
Junction - horizontal #5 & vertical #3
Connection - horizontal #5 & vertical #4
Connection - horizontal #6 & vertical #3
Junction - horizontal #6 & vertical #4

Shared Relation

No
No
No
Yes
Yes
Yes
No
No
Yes
No
Yes
Yes
Yes

**Calculation of Jaccard's Index for the comparison of the Mén pictogram
with the Little Lake pictograph**

Total number of shared features $M_{11} = 16$

Total number of features $N = 22$

For Index of Similarity calculation: $M_{10} = 4$; $M_{01} = 2$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{16}{4 + 2 + 16} = \frac{16}{22} = 0.7273$$

For $N = 22$ and $J = 0.7273$; $P < 0.001$

Chart 84

Chinese Yǐn (to pull) Pictogram vs. Grapevine Canyon Petroglyph



Yǐn pictogram
Image: Richard Sears



Grapevine Canyon paired glyphs
Left: Gōng (bow) & Right: Yǐn (to pull)

Part 1. Comparison of line strokes

<u>Yǐn pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
None	Horizontal #1 (top)	No
Vertical	Vertical	Yes
Horizontal	Horizontal #2 (bottom)	Yes
Left curve #1	Left curve	Yes
Arc up	Arc down	Yes
Left curve #2	None	No

Part 2. Comparison of line stroke touch relations

<u>Yǐn pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
None	Connection - horizontal #1 & vertical	No
Junction - horizontal & vertical	Junction - horizontal #2 & vertical	Yes
Connection - vertical & left curve #1	Connection - vertical & left curve	Yes
Connection - left curve & arc up	Connection - left curve & arc down	Yes
Junction - arc up & left curve #2	None	No

Calculation of Jaccard's Index for the comparison of the Yǐn pictogram with the Grapevine Canyon petroglyph

Total number of shared features $M_{11} = 7$

Total number of features $N = 11$

For Index of Similarity calculation: $M_{10} = 2;$ $M_{01} = 2$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{7}{2 + 2 + 7} = \frac{7}{11} = 0.6364$$

For $N = 11$ and $J = 0.6364;$ $P = 0.05$

Chart 85

Chinese Zhōng (middle) Pictogram vs. Mojave Desert Petroglyph



Zhōng pictogram
Image: L. Wieger



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Zhōng pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center line)	Vertical #1 (center line)	Yes
Vertical #2 (left)	Left curve (left)	No
Vertical #3 (right)	Vertical #2 (right)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōng pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical #1 & horizontal #1	Intersection - vertical #1 & horizontal #1	Yes
Intersection - vertical #1 & horizontal #2	Intersection - vertical #1 & horizontal #2	Yes
Connection - vertical #2 & horizontal #1 (left)	Connection - left curve & horizontal #1 (left)	Yes
Connection - vertical #2 & horizontal #2 (left)	Connection - left curve & horizontal #2 (left)	Yes
Connection - vertical #3 & horizontal #1 (right)	Connection - vertical #2 & horizontal #1 (right)	Yes
Connection - vertical #3 & horizontal #2 (right)	Connection - vertical #2 & horizontal #2 (right)	Yes

Calculation of Jaccard's Index for the comparison of the Zhōng pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 10

Total number of features N = 11

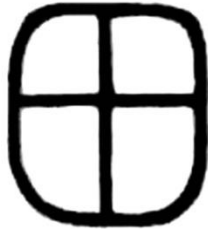
For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{1 + 0 + 10} = \frac{10}{11} = 0.9091$$

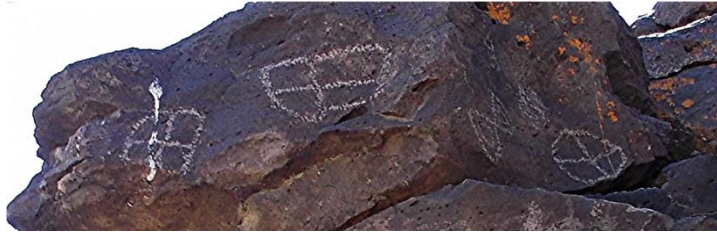
For N = 11 and J = 0.9091; P = 0.001

Chart 86

Chinese Tián (field) Pictogram vs. Mojave Desert Petroglyph



Tián pictogram
Image: Bernhard Karlgren



Mojave Desert glyph (left)

Part 1. Comparison of line strokes

<u>Tián pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central)	Vertical (central)	Yes
Horizontal (central)	Horizontal (central)	Yes
Arc down	Arc down	Yes
Arc up	Arc up	Yes

Part 2. Comparison of line stroke touch relations

<u>Tián pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Vertical - intersection horizontal	Vertical - intersection horizontal	Yes
Vertical - junction arc down	Vertical - junction arc down	Yes
Vertical - junction arc down	Vertical - junction arc down	Yes
Horizontal - junction arc connection point	Horizontal - junction arc connection point	Yes
Horizontal - junction arc connection point	Horizontal - junction arc connection point	Yes
Arc down - connection arc up (left)	Arc down - connection arc up (left)	Yes
Arc down - connection arc up (right)	Arc down - connection arc up (right)	Yes

Calculation of Jaccard's Index for the comparison of the Tián pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

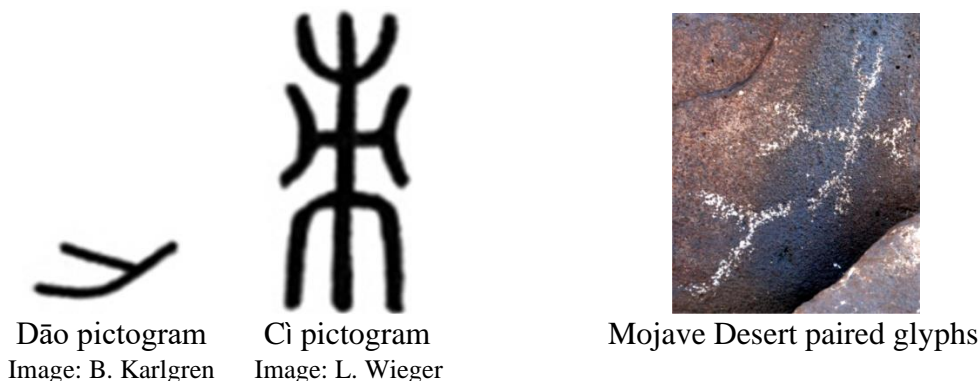
For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000; P < 0.001

Chart 87

Chinese Composite Dǎo & Cì (stab) Pictograms vs. Mojave Desert Paired Petroglyphs



Part 1. Comparison of Cì line strokes

<u>Cì pictogram line strokes with analogous thorn descriptors</u>	<u>Mojave Desert glyph line strokes with analogous thorn descriptors</u>	<u>Shared Feature</u>
Vertical (central stem)	Vertical (central stem)	Yes
Horizontal (central branch)	Horizontal (central branch)	Yes
Arc up (top branches)	Arc up (top branches)	Yes
Right curve (left branch)	Right curve (left branch)	Yes
Arc down (roots)	Arc down (roots)	Yes
Left curve (right branches)	Left curve (right branches)	Yes

Part 2. Comparison of Cì line stroke touch relations

<u>Cì pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - horizontal with vertical (center)	Intersection - horizontal with vertical (center)	Yes
Intersection - vertical with arc up	Junction - vertical with arc up	No
Junction - horizontal with right curve	Junction - horizontal with right curve	Yes
Intersection - vertical with arc down	Junction - vertical with arc down	No
Junction - horizontal with left curve	Junction - horizontal with left curve	Yes

Part 3. Comparison of Dǎo line strokes

<u>Dǎo pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Relation</u>
Diagonal down	Diagonal down	Yes
Diagonal up	Diagonal up #1	Yes
Curve-up right	Diagonal up #2	No

Part 4. Comparison of Dǎo line stroke touch relations

<u>Dǎo pictogram line stroke touch relations</u>	<u>Mojave Desert glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection - diagonal down & diagonal up	Connection - diagonal down & diagonal up #1	Yes
Connection - curve-up right & diagonal up	Connection - diagonal up #1 & diagonal up #2	Yes
Placement - Dǎo figure alongside of Cì	Placement - Dǎo figure alongside of Cì	Yes

**Calculation of Jaccard's Index for the comparison of the composite Dão & Cì pictograms
with the Mojave Desert paired petroglyphs**

Total number of shared features $M_{11} = 14$

Total number of features $N = 17$

For Index of Similarity calculation: $M_{10} = 3$; $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{14}{3 + 0 + 14} = \frac{14}{17} = 0.8235$$

For $N = 17$ and $J = 0.8235$; $P < 0.001$

Chart 88

Chinese Zhōu (boat) Pictogram vs. Tenmile Draw Petroglyph



Zhōu pictogram
Image: Richard Sears



Tenmile Draw glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes</u>	<u>Tenmile Draw glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Vertical #1 (left)	Vertical #1 (left)	Yes
Vertical #2 (right)	Vertical #2 (right)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Diagonal up	Diagonal up	Yes
Diagonal down	Diagonal down	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Tenmile Draw glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - horizontal #1 & vertical #1	Junction - horizontal #1 & vertical #1	Yes
Junction - horizontal #1 & vertical #2	Junction - horizontal #1 & vertical #2	Yes
Junction - vertical #1 & horizontal #2	Junction - vertical #1 & horizontal #2	Yes
Junction - vertical #2 & horizontal #2	Junction - vertical #2 & horizontal #2	Yes
Connection - horizontal #2 & diagonal up	Connection - horizontal #2 & diagonal up	Yes
Connection - horizontal #2 & diagonal down	Connection - horizontal #2 & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Tenmile Draw petroglyph

Total number of shared features M11 = 12

Total number of features N = 12

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{12}{0 + 0 + 12} = \frac{12}{12} = 1.0000$$

For N = 12 and J = 1.0000; P < 0.001

Chart 89

Chinese Mù (tree) Pictogram vs. Hardscrabble Wash Petroglyph



Mù pictogram
Image: Richard Sears



Hardscrabble Wash glyph

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes and analogous tree descriptors</u>	<u>Hardscrabble Wash glyph line strokes and analogous tree descriptors</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Diagonal down #1 (left branch)	Diagonal down #1 (left branch)	Yes
Diagonal up #1 (right branch)	Diagonal up #1 (right branch)	Yes
Diagonal up #2 (left root)	Diagonal up #2 (left root)	Yes
Diagonal down #2 (right root)	Diagonal down #2 (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Hardscrabble Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - diagonal down #1 & vertical	Junction - diagonal down #1 & vertical	Yes
Junction - diagonal up #1 & vertical	Junction - diagonal up #1 & vertical	Yes
Junction - diagonal up #2 & vertical	Junction - diagonal up #2 & vertical	Yes
Junction - diagonal down #2 & vertical	Junction - diagonal down #2 & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Mù pictogram with the Hardscrabble Wash petroglyph

Total number of shared features M11 = 9

Total number of features N = 9

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For N = 9 and J = 1.0000; P < 0.001

Chart 90

Chinese Wú (no or not) Pictogram vs. Rinconada Canyon Petroglyph



Wú pictogram
Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Wú pictogram line strokes</u>	<u>Rinconada Canyon glyph line-strokes</u>	<u>Shared Feature</u>
Diagonal up #1 (left top)	Diagonal up #1 (left top)	Yes
Diagonal up #2 (right bottom)	Diagonal up #2 (right bottom)	Yes
Diagonal up #3 (center)	Diagonal up #3 (center)	Yes
Diagonal down #1 (right top)	Diagonal down #1 (right top)	Yes
Diagonal down #2 (left bottom)	Diagonal down #2 (left bottom)	Yes
Diagonal down #3 (center)	Diagonal down #3 (center)	Yes

Part 2. Comparison of line stroke touch relations

<u>Wú pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - diagonal up #1 & diagonal down #1	Connection - diagonal up #1 & diagonal down #1	Yes
Connection - diagonal down #1 & diagonal up #2	Connection - diagonal down #1 & diagonal up #2	Yes
Connection - diagonal up #2 & diagonal down #2	Connection - diagonal up #2 & diagonal down #2	Yes
Connection - diagonal down #2 & diagonal up #1	Connection - diagonal down #2 & diagonal up #1	Yes
Intersection - diagonal up #3 & diagonal down #3	Intersection - diagonal up #3 & diagonal down #3	Yes
Intersection - diagonal up #1 & diagonal down #3	Intersection - diagonal up #1 & diagonal down #3	Yes
Intersection - diagonal down #1 & diagonal up #3	Intersection - diagonal down #1 & diagonal up #3	Yes
Intersection - diagonal up #2 & diagonal down #3	Intersection - diagonal up #2 & diagonal down #3	Yes
Intersection - diagonal down #2 & diagonal up #3	Intersection - diagonal down #2 & diagonal up #3	Yes

Calculation of Jaccard's Index for the comparison of the Wú pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 15

Total number of features N = 15

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{0 + 0 + 15} = \frac{15}{15} = 1.0000$$

For N = 15 and J = 1.0000; P < 0.001

Chart 91

Chinese Bāng (state or nation) Pictogram vs. Mojave Desert Petroglyph



Bāng pictogram
Image: Bernhard Karlgran



Mojave Desert glyph

Part 1. Comparison of line Strokes

<u>Bāng pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (lower left)	Vertical #1 (lower left)	Yes
Vertical #2 (lower center)	Vertical #2 (lower center)	Yes
Vertical #3 (lower right)	Vertical #3 (lower right)	Yes
Vertical #4 (top center)	Vertical #4 (top center)	Yes
Horizontal #1 (lower top)	Horizontal #1 (lower top)	Yes
Horizontal #2 (lower middle)	Horizontal #2 (lower middle)	Yes
Horizontal #3 (lower bottom)	Horizontal #3 (lower bottom)	Yes
Diagonal down #1 (top left)	Curve-up left (top left)	No
Diagonal up #1 (top right)	Curve-up right (top right)	No
Diagonal down #2 (middle left)	Diagonal down #1 (top middle left)	Yes
Diagonal up #2 (middle right)	Diagonal up #2 (top middle right)	Yes
None	Diagonal down #3 (top bottom left)	No

Part 2. Comparison of line stroke touch relations

<u>Bāng pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Junction - vertical #1 & horizontal #2	Junction - vertical #1 & horizontal #2	Yes
Connection - vertical #1 & horizontal #3	Connection - vertical #1 & horizontal #3	Yes
Junction - vertical #2 & horizontal #1	Junction - vertical #2 & horizontal #1	Yes
Intersection - vertical #2 & horizontal #2	Intersection - vertical #2 & horizontal #2	Yes
Junction - vertical #2 & horizontal #3	Junction - vertical #2 & horizontal #3	Yes
Connection - vertical #3 & horizontal #1	Connection - vertical #3 & horizontal #1	Yes
Junction - vertical #3 & horizontal #2	Junction - vertical #3 & horizontal #2	Yes
Connection - vertical #3 & horizontal #3	Connection - vertical #3 & horizontal #3	Yes
Junction - vertical #4 & horizontal #1	Junction - vertical #4 & horizontal #1	Yes
Junction - diagonal down #1 & vertical #4	Junction - curve-up left & vertical #4	Yes
Junction - diagonal up #1 & vertical #4	Junction - curve-up right & vertical #4	Yes
Junction - diagonal down #2 & vertical #4	Junction - diagonal down #1 & vertical #4	Yes
Junction - diagonal up #2 & vertical #4	Junction - diagonal up #1 & vertical #4	Yes
None	Junction - diagonal down #3 & vertical #4	No

- Chart continued on the following page -

**Calculation of Jaccard's Index for the comparison of the Bāng pictogram
with the Mojave Desert petroglyph**

Total number of shared features $M_{11} = 23$

Total number of features $N = 27$

For Index of Similarity calculation:

$M_{10} = 2;$

$M_{01} = 2$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{23}{2 + 2 + 23} = \frac{23}{27} = 0.8519$$

For $N = 27$ and $J = 0.8519;$ $P < 0.001$

Chart 92

Chinese Zhōu (boat) Pictogram vs. Mojave Desert Petroglyph



Zhōu pictogram
Image: Bernhard Karlgren



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes and analogous boat descriptors</u>	<u>Mojave Desert glyph line strokes and analogous boat descriptors</u>	<u>Shared Feature</u>
Right curve #1 (left hull + strake)	Right curve #1 (left hull + strake)	Yes
Right curve #2 (right hull + strake)	Right curve #2 (right hull + strake)	Yes
Diagonal up (bow)	Arc down (bow)	Yes
None	Horizontal #1 (bow thwart)	No
Horizontal #1 (midship thwart)	Horizontal #2 (midship thwart)	Yes
Horizontal #2 (stern)	Horizontal #3 (stern)	Yes
Wavy line (water)	Wavy line (water)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Placement - right curve #1 parallel right curve #2	Placement - right curve #1 parallel right curve #2	Yes
Junction - diagonal up & right curve #1	Connection - arc down & vertical left	No
Junction - diagonal up & right curve #2	Connection - arc down & vertical right	No
Junction - horizontal #1 & right curve #1	Junction - horizontal #1 & right curve #1	Yes
Junction - horizontal #1 & right curve #2	Junction - horizontal #1 & right curve #2	Yes
None	Junction - horizontal #2 & right curve #1	No
None	Junction - horizontal #2 & right curve #2	No
Junction - horizontal #2 & right curve #1	Junction - horizontal #3 & right curve #1	Yes
Junction - horizontal #2 & right curve #2	Junction - horizontal #3 & right curve #2	Yes
Connection - wavy line & right curve #2 (top)	Connection - wavy line & right curve #1 (bottom)	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 11

Total number of features N = 17

For Index of Similarity calculation: M10 = 3; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{3 + 3 + 11} = \frac{11}{17} = 0.6471$$

For N = 17 and J = 0.6471; P = 0.01

Chart 93

Chinese Lǚ (salt) Pictogram vs. Zuni Wash Petroglyph



Lǚ pictogram
Image: L. Wiegner



Zuni Wash glyph

Part 1. Comparison of line strokes

<u>Lǚ pictogram line strokes</u>	<u>Zuni Wash glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top handle)	None	No
Horizontal #2 (top)	Horizontal #1 (top)	Yes
Horizontal #3 (bottom)	Horizontal #2 (bottom)	Yes
Vertical #1 (top handle)	Vertical #1 (top handle)	Yes
Vertical #2 (left side)	Vertical #2 (left side)	Yes
Vertical #3 (right side)	Vertical #3 (right side)	Yes
Diagonal up	Diagonal up	Yes
Diagonal down	Diagonal down	Yes
Horizontal #4 (dash top)	Horizontal #4 (dash top)	Yes
Horizontal #5 (dash bottom)	Horizontal #5 (dash bottom)	Yes
Vertical #4 (dash left interior)	Circle #1 (left interior)	No
Vertical #5 (dash right interior)	Circle #2 (right interior)	No

Part 2. Comparison of line stroke touch relations

<u>Lǚ pictogram line stroke relations</u>	<u>Zuni Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical #1 and horizontal #1	None	No
Junction - vertical #1 & horizontal #2	Junction - vertical #1 & horizontal #1	Yes
Connection - horizontal #2 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - vertical #2 & horizontal #3	Connection - vertical #2 & horizontal #2	Yes
Connection - horizontal #3 & vertical #3	Connection - horizontal #2 & vertical #3	Yes
Connection - vertical #3 & horizontal #2	Connection - vertical #3 & horizontal #1	Yes
Junction - diagonal up & bottom left corner	Junction - diagonal up & bottom left corner	Yes
Junction - diagonal up & top right corner	Junction - diagonal up & top right corner	Yes
Junction - diagonal down & top left corner	Junction - diagonal down & top left corner	Yes
Junction - diagonal down & bottom right corner	Junction - diagonal down & bottom right corner	Yes
Placement - Horizontal #4 in top quadrant	Placement - horizontal #4 in top quadrant	Yes
Placement - horizontal #5 in bottom quadrant	Placement - horizontal #5 in bottom quadr	Yes
Placement - vertical #4 in left quadrant	Placement - circle #1 in left quadrant	Yes
Placement - vertical #5 in right quadrant	Placement - circle #2 in right quadrant	Yes

Calculation of Jaccard's Index for the comparison of the Lǚ pictogram with the Zuni Wash petroglyph

Total number of shared features $M11 = 22$
 Total number of features $N = 26$
 For Index of Similarity calculation: $M10 = 2;$ $M01 = 2$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{22}{2 + 2 + 22} = \frac{22}{26} = 0.8462$$

For $N = 26$ and $J = 0.8462;$ $P < 0.001$

Chart 94

Chinese Kùn (difficult) Pictogram vs. Zuni Wash Petroglyph



Kùn pictogram
Image: Ma Ru Sen



Zuni Wash glyph

Part 1. Comparison of line strokes

Kùn pictogram line strokes and analogous descriptors

Vertical (central trunk)
Diagonal down #1 (left branch)
Diagonal up #1 (right branch)
Diagonal up #2 (left root)
Diagonal down #2 (right root)
Horizontal #1 (top)
Horizontal #2 (bottom)
Vertical #1 (left)
Vertical #2 (right)

Zuni Wash glyph line strokes and analogous descriptors

Vertical (central trunk)
Diagonal down #1 (left branch)
Diagonal up #1 (right branch)
Diagonal up #2 (left root)
Diagonal down #2 (right root)
Horizontal #1 (top)
Horizontal #2 (bottom)
Vertical #1 (left)
Vertical #2 (right)

Shared Feature

Yes
Yes
Yes
Yes
Yes
Yes
Yes
Yes
Yes

Part 2. Comparison of line stroke touch relations

Kùn pictogram line stroke relations

Junction - diagonal down #1 & vertical
Junction - diagonal up #1 & vertical
Junction - diagonal up #2 & vertical
Junction - diagonal down #2 & vertical
Placement - Mù figure within rectangle

Zuni Wash glyph line stroke relations

Junction - diagonal down #1 & vertical
Junction - diagonal up #1 & vertical
Junction - diagonal up #2 & vertical
Junction - diagonal down #2 & vertical
Placement - Mù figure within rectangle

Shared Relation

Yes
Yes
Yes
Yes
Yes

Calculation of Jaccard's Index for the comparison of the Kùn pictogram with the Zuni Wash petroglyph

Total number of shared features $M11 = 14$

Total number of features $N = 14$

For Index of Similarity calculation: $M10 = 0;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{14}{0 + 0 + 14} = \frac{14}{14} = 1.0000$$

For $N = 14$ and $J = 1.0000;$ $P < 0.001$

Chart 95

Chinese Jiū (join) Pictogram vs. Arizona Ranch Petroglyph



Jiū pictogram
Image: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Jiū pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Vertical #1 (left)	Vertical #1 (left)	Yes
Horizontal #2 (bottom middle)	Horizontal #2 (bottom middle)	Yes
Diagonal down #1 (top middle)	Horizontal #3 (top middle)	No
Vertical #2 (right)	Vertical #2 (right)	Yes
Diagonal down #2 (bottom)	Horizontal #4 (bottom)	No

Part 2. Comparison of line stroke touch relations

<u>Jiū pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - horizontal #1 & vertical #1	Connection - horizontal #1 & vertical #1	Yes
Connection - vertical #1 & horizontal #2	Connection - vertical #1 & horizontal #2	Yes
Connection - diagonal down #1 & vertical #2	Connection - horizontal #3 & vertical #2	No
Connection - vertical #2 & diagonal down #2	Connection - vertical #2 & horizontal #4	No
Placement - interlocking hooks	Placement - interlocking hooks	Yes

Calculation of Jaccard's Index for the comparison of the Jiū pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 7

Total number of features N = 11

For Index of Similarity calculation: M10 = 4; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{4 + 0 + 7} = \frac{7}{11} = 0.6364$$

For N = 11 and J = 0.6364; P = 0.05

Chart 96

Chinese Gān (sweet) Pictogram vs. Mojave Desert Petroglyph



Gān pictogram
Image: Chinese Text Project



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Gān pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Arc up	Arc up	Yes

Part 2. Comparison of line stroke touch relations

<u>Gān pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - horizontal #1 & arc up (left)	Junction - horizontal #1 & arc up (left)	Yes
Junction - horizontal #1 & arc up (right)	Junction - horizontal #1 & arc up (right)	Yes
Junction - horizontal #2 & arc up (left)	Junction - horizontal #2 & arc up (left)	Yes
Junction - horizontal #2 & arc up (right)	Junction - horizontal #2 & arc up (right)	Yes

Calculation of Jaccard's Index for the comparison of the Gān pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 7

Total number of features N = 7

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{0 + 0 + 7} = \frac{7}{7} = 1.0000$$

For N = 7 and J = 1.0000; P = 0.001

Chart 97

Chinese Fū (man) Pictogram vs. Mojave Desert Petroglyph



Fū pictogram
Image: Richard Sears



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Fū pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal #1	Horizontal #1	Yes
Horizontal #2	Horizontal #2	Yes
Diagonal up (left)	Diagonal up (left)	Yes
Diagonal down (right)	Diagonal down (right)	Yes

Part 2. Comparison of line stroke touch relations

<u>Fū pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal #1	Intersection - vertical & horizontal #1	Yes
Intersection - vertical & horizontal #2	Intersection - vertical & horizontal #2	Yes
Connection - vertical & diagonal up	Connection - vertical & diagonal up	Yes
Connection - vertical & diagonal down	Connection - vertical & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Fū pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 9

Total number of features N = 9

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For N = 9 and J = 1.0000; P < 0.001

Chart 98
Chinese Mǔ (mother) Pictogram vs. Mojave Desert Petroglyph



Mǔ pictogram
 Image: Richard Sears



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Mǔ pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Left curve	Left curve	Yes
Right curve	Right curve	Yes
Dot (left)	Dot (left)	Yes
Dot (right)	Dot (right)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mǔ pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical & left curve (top)	Junction - vertical & left curve (top)	Yes
Junction - vertical & right curve (top)	Junction -vertical & right curve (top)	Yes
Junction - vertical & left curve (bottom)	Junction - vertical & left curve (bottom)	Yes
Junction - vertical & right curve (bottom)	Junction - vertical & right curve (bottom)	Yes
Placement - dot within left curve	Placement - dot within left curve	Yes
Placement - dot within right curve	Placement - dot within right curve	Yes

Calculation of Jaccard's Index for the comparison of the Mǔ pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

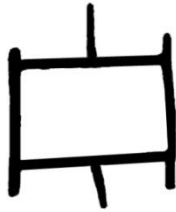
For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000; P < 0.001

Chart 99

Chinese Zhù (granary) Pictogram vs. Mojave Desert Petroglyph



Zhù pictogram
Image: Richard Sears



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Zhù pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Vertical #1 (left)	Vertical #1 (left)	Yes
Vertical #2 (right)	Vertical #2 (right)	Yes
Vertical #3 (top)	Vertical #3 (top)	Yes
Vertical #4 (bottom)	Vertical #4 (bottom)	Yes
None	Dots (millet)	No

Part 2. Comparison of line stroke touch relations

<u>Zhù pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - horizontal #1 & vertical #1	Connection - horizontal #1 & vertical #1	No
Junction - horizontal #1 & vertical #2	Junction - horizontal #1 & vertical #2	No
Junction - horizontal #2 & vertical #1	Junction - horizontal #2 & vertical #1	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes
Junction - vertical #3 & horizontal #1	Junction - vertical #3 & horizontal #1	Yes
Junction - vertical #4 & horizontal #2	Junction - vertical #4 & horizontal #2	Yes
None	Placement - dots within center	No

Calculation of Jaccard's Index for the comparison of the Zhù pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 10

Total number of features N = 14

For Index of Similarity calculation: M10 = 2; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{2 + 2 + 10} = \frac{10}{14} = 0.7143$$

For N = 14 and J = 0.7143; P = 0.01

Chart 100
Chinese Jiǔ (liquor) Pictogram vs. Mojave Desert Petroglyph



Jiǔ pictogram
 Image: Richard Sears



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Jiǔ pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Oval cartouche	Oval cartouche	Yes
Vertical #1 (left)	Vertical #1 (left)	Yes
Vertical #2 (right)	Vertical #2 (right)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (middle)	Horizontal #2 (middle)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes
Water symbol (left)	Water symbol (right)	Yes

Part 2. Comparison of line stroke touch relations

<u>Jiǔ pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - vertical #1 & horizontal #1	Junction - vertical #1 & horizontal #1	Yes
Junction - vertical #2 & horizontal #1	Junction - vertical #2 & horizontal #1	Yes
Junction - horizontal #1 & cartouche (left)	junction - horizontal #1 & cartouche (left)	Yes
Junction - horizontal #1 & cartouche (right)	Junction - horizontal #1 & cartouche (right)	Yes
Placement - horizontal #2 below horizontal #1	Placement - horizontal #2 below horizontal #1	Yes
Placement - horizontal #3 below horizontal #2	Placement - horizontal #3 below horizontal #2	Yes
Placement - water symbol left of cartouche	Placement - water symbol right of cartouche	No

Calculation of Jaccard's Index for the comparison of the Jiǔ pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 13

Total number of features N = 14

For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{1 + 0 + 13} = \frac{13}{14} = 0.9286$$

For N = 14 and J = 0.9286; P < 0.001

Chart 101

Part 1: Chinese Guó (nation) Pictogram vs. Mojave Desert Petroglyph



Guó pictogram
Image: Richard Sears



Mojave Desert glyphs

Part 1. Comparison of line strokes

<u>Guó pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Smooth-edged cartouche	Smooth-edged cartouche	Yes
Diagonal up	None	No
Diagonal down	None	No
Vertical #1 (left)	Vertical #1 (left)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (middle)	Horizontal #2 (middle)	Yes

Part 2. Comparison of line stroke touch relations

<u>Guó pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - diagonal up & cartouche (left)	None	No
Junction - diagonal down & cartouche (top)	None	No
Intersection - vertical & horizontal #1	Intersection - vertical & horizontal #1	Yes
Junction - vertical & horizontal #2	Junction - vertical & horizontal #2	Yes
Placement - Tū script within cartouche	Placement - Tū script within cartouche	Yes

Part 1: Calculation of Jaccard's Index for the comparison of the Guó pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 7

Total number of features N = 11

For Index of Similarity calculation: M10 = 4; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{4 + 0 + 7} = \frac{7}{11} = 0.6364$$

For N = 11 and J = 0.6364; P = 0.05

- Chart continued on the following page -

Part 2: Chinese Wáng (king) Pictogram vs. Mojave Desert Petroglyph



Wáng pictogram
Image: Frank Chalfant



Mojave Desert glyphs

Part 1. Comparison of line strokes

<u>Wáng pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Dot #1 (top)	Dot #1 (top)	Yes
Dot #2 (middle)	Dot #2 (middle)	Yes
Dot #3 (bottom)	Circle (bottom)	No

Part 2. Comparison of line stroke touch relations

<u>Wáng pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – dot #1 & vertical (top)	Connection – dot #1 & vertical (top)	Yes
Intersection – dot #2 & vertical (middle)	Intersection – dot #2 & vertical (middle)	Yes
Connection – dot #3 & vertical (bottom)	Connection – circle & vertical (bottom)	Yes

Part 2: Calculation of Jaccard's Index for the comparison of the Wáng pictogram with the Mojave Desert petroglyph

Total number of shared features $M11 = 6$

Total number of features $N = 7$

For Index of Similarity calculation: $M10 = 1$; $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{6}{1 + 0 + 6} = \frac{6}{7} = 0.8571$$

For $N = 7$ and $J = 0.8571$; $P = 0.01$

- Chart continued on the following page -

**Calculation of Jaccard's Index for the comparison of the combined Guó Wáng pictograms
with the Mojave Desert petroglyphs**

Total number of shared features $M_{11} = 13$

Total number of features $N = 18$

For Index of Similarity calculation: $M_{10} = 5$; $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{13}{5 + 0 + 13} = \frac{13}{18} = 0.7222$$

For $N = 18$ and $J = 0.7222$; $P = 0.001$

Chart 102
Chinese Gān (dry) Pictogram vs. Mojave Desert Petroglyph



Gān pictogram
 Image: Richard Sears



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Gān pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Arc up	Arc up	Yes
Vertical	Vertical	Yes
Horizontal	Horizontal	Yes

Part 2. Comparison of line stroke touch relations

<u>Gān pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – arc up & vertical	Junction – arc up & vertical	Yes
Intersection – vertical & horizontal	Intersection – vertical & horizontal	Yes

Calculation of Jaccard's Index for the comparison of the Gān pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 5

Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For N = 5 and J = 1.0000; P = 0.01

Chart 103

Chinese Jiàn (look or see) Pictogram vs. Mojave Desert Petroglyph



Jiàn pictogram
Image: Richard Sears



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Jiàn pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Oval cartouche	Oval cartouche	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Left curve (left)	Wavy line #1 (left)	No
Wavy line (right)	Wavy line #2 (right)	Yes

Part 2. Comparison of line stroke touch relations

<u>Jiàn pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – cartouche & horizontal #1 (left)	Junction – cartouche & horizontal #1 (left)	Yes
Junction – cartouche & horizontal #1 (right)	Junction – cartouche & horizontal #1 (right)	Yes
Junction – cartouche & horizontal #2 (left)	Junction – cartouche & horizontal #2 (left)	Yes
Junction – cartouche & horizontal #2 (right)	Junction – cartouche & horizontal #2 (right)	Yes
Junction – cartouche & left curve	Junction – cartouche & wavy line #1	Yes
Junction – cartouche & wavy line	Junction – cartouche & wavy line #2	Yes

Calculation of Jaccard's Index for the comparison of the Jiàn pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 10

Total number of features N = 11

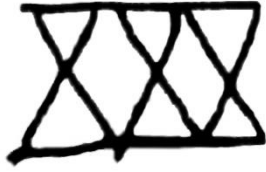
For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{1 + 0 + 10} = \frac{10}{11} = 0.9091$$

For N = 11 and J = 0.9091; P = 0.001

Chart 104

Chinese Wǎng (net) Pictogram vs. Mojave Desert Petroglyph



Wǎng pictogram
Image: Bernhard Karlgren



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Wǎng pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Cross-hatch line pattern	Cross-hatch line pattern	Yes

Part 2. Comparison of line stroke touch relations

<u>Wǎng pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Placement – horizontal #1 parallel horizontal #2	Placement – horizontal #1 parallel horizontal #2	Yes
Junction – horizontal #1 & cross-hatch lines (top)	Junction – horizontal #1 & cross-hatch lines (top)	Yes
Junction – horizontal #2 & ... cross-hatch lines (bottom)	Junction – horizontal #2 & ... cross-hatch lines (bottom)	Yes

Calculation of Jaccard's Index for the comparison of the Wǎng pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 6

Total number of features N = 6

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{6}{0 + 0 + 6} = \frac{6}{6} = 1.0000$$

For N = 6 and J = 1.0000; P = 0.01

Chart 105

Chinese Jiā (home) Pictogram vs. Arizona Ranch Petroglyph



Jiā pictogram
Image: Richard Sears



Arizona Ranch glyph

Part 1. Comparison of line strokes

<u>Jiā pictogram line strokes</u>	<u>Arizona Ranch glyph line strokes</u>	<u>Shared Feature</u>
Arc down (head)	Arc down (head)	Yes
Vertical (forebody)	Diagonal up #1 (forebody)	No
Diagonal up #1 (front leg)	Left curve #1 (front leg)	No
Diagonal up #2 (front leg)	Left curve #2 (front leg)	No
Diagonal down (body)	Diagonal down (body)	Yes
Horizontal (rear leg)	Horizontal (rear leg)	Yes
Diagonal up #3 (rear leg)	Diagonal up #2 (rear leg)	Yes
Curve-down right (tail)	None	No

Part 2. Comparison of line stroke touch relations

<u>Jiā pictogram line stroke relations</u>	<u>Arizona Ranch glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – vertical & arc down	Junction – diagonal up & arc down	Yes
Junction – diagonal up #1 & vertical	Connection – left curve #1 & diagonal up #1	Yes
Connection – vertical & diagonal down	None	No
Connection – diagonal up #2 & diagonal down	Connection – left curve #2 & diagonal down	Yes
Connection – horizontal & diagonal down	Connection – horizontal & diagonal down	Yes
Connection – diagonal up #3 & diagonal down	Connection – diagonal up #2 & diagonal down	Yes
Connection – curve-down right & diagonal down	None	No

Calculation of Jaccard's Index for the comparison of the Jiā pictogram with the Arizona Ranch petroglyph

Total number of shared features M11 = 9

Total number of features N = 15

For Index of Similarity calculation: M10 = 3; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{3 + 3 + 9} = \frac{9}{15} = 0.6000$$

For N = 15 and J = 0.6000; P = 0.05

Chart 106

Chinese Zōng (ancestor) Pictogram vs. Mojave Desert Petroglyph



Zōng pictogram
Image: Richard Sears



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Zōng pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Arc down (top)	Horizontal #1 (top)	No
Horizontal #1 (top)	None	No
Horizontal #2 (lower top)	Horizontal #2 (lower top)	Yes
Vertical #1 (right)	Vertical #1 (right)	Yes
Vertical #2 (right middle)	Vertical #2 (right middle)	Yes
Vertical #3 (center)	Vertical #3 (center)	Yes
Vertical #4 (left middle)	Vertical #4 (left middle)	Yes
Vertical #5 (left)	Vertical #5 (left)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zōng pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – arc down & vertical #1	Connection – horizontal #1 & vertical #1	Yes
Connection – arc down & vertical #5	Connection – horizontal #1 & vertical #5	Yes
Placement – horizontal #1 below arc down	None	No
Junction – horizontal #2 & vertical #1	Junction – horizontal #2 & vertical #1	Yes
Junction – horizontal #2 & vertical #5	Junction – horizontal #2 & vertical #5	Yes
Placement – vertical #2 between verticals #1 & #3	Junction – vertical #2 & horizontal #2	No
Placement – vertical #4 between verticals #3 & #5	Junction – vertical #4 & horizontal #2	No
Junction – vertical #3 & horizontal #2	Intersection – vertical #3 & horizontal #2	No
None	Junction – vertical #3 & horizontal #1	No

Calculation of Jaccard's Index for the comparison of the Zōng pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 10

Total number of features N = 17

For Index of Similarity calculation: M10 = 6; M01 = 1

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{6 + 1 + 10} = \frac{10}{17} = 0.5882$$

For N = 17 and J = 0.5882; P = 0.05

Chart 107

Chinese Cè (book) Pictogram vs. Mojave Desert Petroglyph



Cè pictogram
Image: Richard Sears



Mojave Desert glyph

Part 1. Comparison of line strokes

<u>Cè pictogram line strokes</u>	<u>Mojave Desert glyph line strokes</u>	<u>Shared Feature</u>
Left curve	Left curve	Yes
Vertical #1 (right)	Vertical #1 (right)	Yes
Vertical #2 (right middle)	Vertical #2 (right middle)	Yes
Vertical #3 (center)	Vertical #3 (right center)	Yes
Vertical #4 (left middle)	Vertical #4 (left center)	Yes
Vertical #5 (left)	Vertical #5 (left middle)	Yes
None	Vertical #6 (left)	No

Part 2. Comparison of line stroke touch relations

<u>Cè pictogram line stroke relations</u>	<u>Mojave Desert glyph line stroke relations</u>	<u>Shared Relation</u>
Placement – vertical #1 closing end of left curve	Placement – vertical #1 closing end of left curve	Yes
Placement – vertical #2 transvers left curve	Placement – vertical #2 transverse left curve	Yes
Placement – vertical #3 transverse left curve	Placement – vertical #3 transverse left curve	Yes
Placement – vertical #4 transverse left curve	Placement – vertical #4 transverse left curve	Yes
Placement – vertical #5 transverse left curve	Placement – vertical #5 transverse left curve	Yes
None	Placement – vertical #6 junction left curve	No

Calculation of Jaccard's Index for the comparison of the Cè pictogram with the Mojave Desert petroglyph

Total number of shared features M11 = 11

Total number of features N = 13

For Index of Similarity calculation: M10 = 0; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 2 + 11} = \frac{11}{13} = 0.8462$$

For N = 13 and J = 0.8462; P = 0.001

Chart 108

Chinese Suàn (to count) Pictogram vs. Rinconada Canyon Petroglyph



Suàn pictogram
Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Suàn pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Zhú pictogram (top)	Zhú pictogram (top)	Yes
Gōng pictogram (bottom)	Gōng pictogram (bottom)	Yes
Square	Square	Yes
Horizontal #1 (within square)	Vertical #1 (within square)	No
Horizontal #2 (within square)	Vertical #2 (within square)	No

Part 2. Comparison of line stroke touch relations

<u>Suàn pictogram line stroke relations</u>	<u>Rinconada Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Placement – square between pictogram sets	Placement – square between pictogram sets	Yes
Placement – chí pictogram at top facing down	Placement – chí pictogram at top facing down	Yes
Placement – gong pictogram at bottom facing up	Placement – gong pictogram at bottom facing up	Yes
Placement – horizontals inside square	Placement – verticals inside square	Yes

Calculation of Jaccard's Index for the comparison of the Suàn pictogram with the Rinconada Canyon petroglyph

Total number of shared features $M11 = 7$

Total number of features $N = 9$

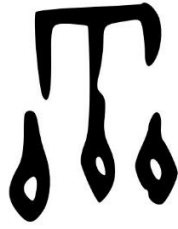
For Index of Similarity calculation: $M10 = 2$; $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{2 + 0 + 7} = \frac{7}{9} = 0.7778$$

For $N = 9$ and $J = 0.7778$; $P = 0.01$

Chart 109

Chinese Líng (rain drops) Pictogram vs. Zuni Wash Glyph



Chinese Líng pictogram
Image: Richard Sears



Zuni Wash glyph

Part 1. Comparison of line strokes

<u>Líng pictogram line strokes</u>	<u>Zuni Wash glyph line strokes</u>	<u>Shared Feature</u>
Horizontal	Horizontal	Yes
Vertical #1 (right)	Vertical #1 (right)	Yes
Vertical #2 (middle)	Vertical #2 (middle)	Yes
Vertical #3 (left)	Vertical #3 (left)	Yes
Round drop #1 (right)	Round drop #1 right)	Yes*
Round drop #2 (middle)	Round drop #2 (middle)	Yes*
Round drop #3 (left)	Round drop #3 (left)	Yes*

Part 2. Comparison of line stroke touch relations

<u>Líng pictogram line stroke relations</u>	<u>Zuni Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – horizontal & vertical #1	Connection – horizontal & vertical #1	Yes
Junction – horizontal & vertical #2	Junction – horizontal & vertical #2	Yes
Connection – horizontal & vertical #3	Connection – horizontal & vertical #3	Yes
Placement – oval #1 below vertical #1	Junction – circle #1 & vertical #1	No
Junction – oval #2 & vertical #2	Junction – circle #2 & vertical #2	Yes
Placement – oval #3 below vertical #3	Junction – circle #3 & vertical #3	No

Calculation of Jaccard's Index for the Comparison of the Chinese Líng pictogram with the Zuni Wash glyph

Total number of shared features M11 = 11

Total number of features N = 13

For Index of Similarity calculation: M10 = 2; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{2 + 0 + 11} = \frac{11}{13} = 0.8462$$

For N = 13 and J = 0.8462; P = 0.001

* See #446 in *Analysis of Chinese Characters, 1922*, by G.D.Wilder and J.H.Ingram for an explanation of this comparison.

Chart 110

Chinese paired Chè and Rì Pictograms (time) vs. Surprise Tank Petroglyph



Shí pictogram
Image: Wilder & Ingram



Surprise Tank petroglyph

Part 1. Comparison of Chè line strokes

<u>Chè (plant) pictogram line strokes</u>	<u>Surprise Tank glyph line strokes</u>	<u>Shared Feature</u>
Vertical (top central stem)	Vertical (top central stem)	Yes
Curve-up left (top branch)	Curve-left (top branch)	Yes
Curve-up right (top branch)	Curve-right (top branch)	Yes
Horizontal (ground line)	Horizontal (ground line)	Yes

Part 2. Comparison of Rì line strokes

<u>Rì (Sun) pictogram line strokes</u>	<u>Surprise Tank glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (middle)	Horizontal #2 (middle)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes
Vertical #1 (left)	Vertical #1 (left)	Yes
Vertical #2 (right)	Vertical #4 (right)	Yes

Part 3. Comparison of Chè line stroke touch relations

<u>Chè (plant) pictogram line stroke relations</u>	<u>Surprise Tank glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – vertical & curve-up left	Junction – vertical & curve-up left	Yes
Junction – vertical & curve-up right	Junction – vertical & curve-up right	Yes

Part 4. Comparison of Rì line stroke touch relations

<u>Rì (Sun) pictogram line stroke relations</u>	<u>Surprise Tank glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – vertical #1 & horizontal #1	Connection – vertical #1 & horizontal #1	Yes
Connection – horizontal #1 & vertical #2	Connection – horizontal #1 & vertical #2	Yes
Connection – vertical #1 & horizontal #3	Connection – vertical #1 & horizontal #3	Yes
Connection – horizontal #3 & vertical #2	Connection – horizontal #3 & vertical #2	Yes
Junction – vertical #1 & horizontal #2	Junction – vertical #3 & horizontal #2	Yes
Junction – horizontal #2 & vertical #2	Junction – horizontal #2 & vertical #2	Yes

Part 5. Placement of the Chè and Rì scripts

<u>Chinese Shí pictogram</u>	<u>Surprise Tank glyphs</u>	<u>Shared Relation</u>
Placement – Chè above ground line	Placement – Chè above ground line	Yes
Placement – Chè & ground line above Rì	Placement – Chè & ground line aside Rì	No

**Calculation of Jaccard's Index for the comparison of the Shí pictogram
with the Surprise Tank petroglyphs**

Total number of shared features $M_{11} = 18$

Total number of features $N = 19$

For Index of Similarity calculation: $M_{10} = 1$; $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{18}{1 + 0 + 18} = \frac{18}{19} = 0.9474$$

For $N = 19$ and $J = 0.9474$; $P < 0.001$

Chart 111

Chinese Mǔ (mother) Pictogram vs. Reserve Arizona Glyph



Mǔ pictogram
Image: Richard Sears



Reserve Arizona glyph

Part 1. Comparison of line strokes

<u>Mǔ pictogram line strokes</u>	<u>Arizona glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Curve left	Curve left	Yes
Curve right	Curve right	Yes
Dot (left)	Dot (left)	Yes
Dot (right)	Dot (right)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mǔ pictogram line stroke touch relations</u>	<u>Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction – vertical & curve left (top)	Junction – vertical & curve left (top)	Yes
Junction – vertical & curve right (top)	Junction -vertical & curve right (top)	Yes
Junction – vertical & curve left (bottom)	Junction – vertical & curve left (bottom)	Yes
Junction – vertical & curve right (bottom)	Junction – vertical & curve right (bottom)	Yes
Placement – dot within curve left	Placement – dot within curve left	Yes
Placement – dot within curve right	Placement – dot within curve right	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Mǔ pictogram with the Reserve Arizona petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000; P < 0.001

Chart 112

Chinese Ān (peace) Pictogram vs. Piedras Marcadas Glyph



Ān pictogram
Image: Richard Sears



Piedras Marcadas glyph

Part 1. Comparison of line strokes

<u>Ān pictogram line strokes</u>	<u>Piedras Marcadas glyph line strokes</u>	<u>Shared Feature</u>
Wavy line (center)	Vertical (center)	Yes
Left curve	Left curve	Yes
Right curve	Right curve	Yes
None	Dot (left)	No
None	Dot (right)	No
Arc down	Arc down	Yes

Part 2. Comparison of line stroke touch relations

<u>Ān pictogram line stroke touch relations</u>	<u>Piedras Marcadas glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction - vertical & left curve (top)	Junction - vertical & left curve (top)	Yes
Junction - vertical & right curve (top)	Junction - vertical & right curve (top)	Yes
Junction - wavy line & left curve (bottom)	Junction - vertical & left curve (bottom)	Yes
Junction - wavy line & right curve (bottom)	Junction - vertical & right curve (bottom)	Yes
Placement - arc down above Mu3 figure	Placement - arc down above figure	Yes
None	Placement - dot within left curve	No
None	Placement - dot within right curve	No

Calculation of Jaccard's Index for the comparison of the Chinese Ān pictogram with the Piedras Marcadas petroglyph

Total number of shared features $M11 = 9$

Total number of features $N = 13$

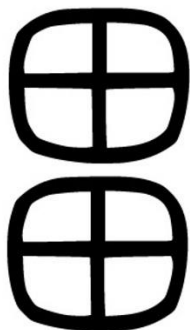
For Index of Similarity calculation: $M10 = 0;$ $M01 = 4$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 4 + 9} = \frac{9}{13} = 0.6923$$

For $N = 13$ and $J = 0.6923;$ $P = 0.01$

Chart 113

Chinese Jiāng (border) Pictogram vs. Eagletail Mountains Glyph



Jiāng pictogram
Image: Richard Sears



Eagletail Mountains glyph

Part 1. Comparison of line strokes

<u>Jiāng pictogram line strokes</u>	<u>Eagletail Mountains glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central)	Vertical (central)	Yes x2
Horizontal (central)	Horizontal (central)	Yes x2
Arc down	Arc down	Yes x2
Arc up	Arc up	Yes x2

Part 2. Comparison of line stroke touch relations

<u>Jiāng pictogram line stroke relations</u>	<u>Eagletail Mountains glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal	Intersection - vertical & horizontal	Yes x2
Junction - vertical & arc down	Junction - vertical & arc down	Yes x2
Junction - vertical & arc up	Junction - vertical & arc up	Yes x2
Junction - horizontal & arcs (right)	Junction - horizontal & arcs (right)	Yes x2
Junction - horizontal & arcs (left)	Junction - horizontal & arcs (left)	Yes x2

Part 3. Placement of the Tían scripts

<u>Chinese Jiāng pictogram</u>	<u>Eagletail Mountains glyphs</u>	<u>Shared Relation</u>
Placement – Tían above Tían	Placement – Tían above Tían	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Jiāng pictogram with the Eagletail Mountains petroglyph

Total number of shared features M11= 19

Total number of features N = 19

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{19}{0 + 0 + 19} = \frac{19}{19} = 1.0000$$

For N = 19 and J = 1.0000; P < 0.001

Chart 114
Chinese Hé (grain) Pictogram vs. Black Rocks Glyph



Hé pictogram
 Image: Bernhard Karlgren (GSR)



Black Rocks glyph

Part 1. Comparison of line strokes

<u>Hé pictogram line strokes</u>	<u>Black Rocks glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Diagonal down (left branch)	Diagonal down (left branch)	Yes
Diagonal up (right branch)	Curve up (right branch)	No
Diagonal up (left root)	Diagonal up (left root)	Yes
Diagonal down (right root)	Diagonal down (right root)	Yes
Diagonal up (top)	Diagonal up (top)	Yes

Part 2. Comparison of line stroke touch relations

<u>Hé pictogram line stroke touch relations</u>	<u>Black Rocks glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction - diagonal down (left branch) & vertical	Junction - diagonal down (left branch) & vertical	Yes
Junction - diagonal up (right branch) & vertical	Junction - curve up (right branch) & vertical	Yes
Junction - diagonal up (left root) & vertical	Junction - diagonal up (left root) & vertical	Yes
Junction - diagonal down (right root) & vertical	Junction - diagonal down (right root) & vertical	Yes
Connection - vertical & diagonal up (top)	Connection - vertical & diagonal up (top)	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Hé pictogram with the Black Rocks petroglyph

Total number of shared features M11 = 10

Total number of features N = 11

For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{1 + 0 + 10} = \frac{10}{11} = 0.9091$$

For N = 11 and J = 0.9091; P = 0.001

Chart 115

Chinese Tiān (heaven) Pictogram vs. Britton Prayer Rock Glyph



Tiān pictogram
Image: Richard Sears



Britton Prayer Rock glyph

Part 1. Comparison of line strokes

<u>Tiān pictogram line strokes</u>	<u>Britton Prayer Rock glyph line strokes</u>	<u>Shared Feature</u>
Vertical (center)	Vertical (center)	Yes
Diagonal up (left leg)	Diagonal up (left leg)	Yes
Diagonal down (right leg)	Diagonal down (right leg)	Yes
Horizontal	Horizontal #1	Yes
Diagonal up (left arm)	Horizontal #2	No
Diagonal down (right arm)	Horizontal #2	No
Circle	Dot	No

Part 2. Comparison of line stroke touch relations

<u>Tiān pictogram line stroke touch relations</u>	<u>Britton Prayer Rock glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection – Circle & vertical (top)	Connection – Dot & vertical (top)	Yes
Intersection - vertical & horizontal	Intersection -vertical & horizontal #1	Yes
Junction – diagonal up (arm) & vertical	Junction - horizontal #2 & vertical	Yes
Junction – diagonal down (arm) & vertical	Junction – horizontal #2 & vertical	Yes
Junction - vertical & curve right	Junction - vertical & curve right	Yes
Junction – vertical & curve left	Junction – vertical & curve left	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Tiān pictogram with the Britton Prayer Rock petroglyph

Total number of shared features M11 = 10

Total number of features N = 13

For Index of Similarity calculation: M10 = 3; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{3 + 0 + 10} = \frac{10}{13} = 0.7692$$

For N = 13 and J = 0.7692; P < 0.01

Chart 116
Chinese Peng (friend) pictogram vs. Three Rivers Glyph



Peng pictogram
(adapted from Qiu Xigui)



Three Rivers glyph

Part 1. Comparison of Line-strokes

<u>Peng pictogram line strokes</u>	<u>Three Rivers glyph line strokes</u>	<u>Shared Feature</u>
Bird profile # 1	Bird profile # 1	Yes
Bird profile #2	Bird profile #2	Yes
Wing feathers (profile #1)	Wing feathers (profile #1)	Yes
Wing feathers (profile #2)	Wing feathers (profile #2)	Yes

Part 2. Comparison of Line-stroke Touch Relations

<u>Peng pictogram line stroke touch relations</u>	<u>Three Rivers glyph line stroke touch relations</u>	<u>Shared Relation</u>
Bird profile #1 facing right	Bird profile #1 facing right	Yes
Bird profile #2 facing left	Bird profile #2 facing left	Yes
Birds connected at breast	Birds connected at breast	Yes
Wing feathers emanate from back of profile #1	Wing feathers emanate from back of profile #1	Yes
Wing feathers emanate from back of profile #2	Wing feathers emanate from back of profile #2	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Peng pictogram with the Three Rivers glyph

Total number of shared features M11= 9

Total number of features N=9

For Index of Similarity calculation: M10 = 0; M01 = 0;

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For N = 9 and J = 1.0000 P < 0.001

Chart 117

Chinese Qīan (thousand) Pictogram vs. Rinconada Canyon Glyph



Qīan pictogram
Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Qīan pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Horizontal	Horizontal	Yes
Vertical (left)	Vertical (left)	Yes
Vertical (right)	Vertical (right)	Yes
Right curve	Right curve	Yes

Part 2. Comparison of line stroke touch relations

<u>Qīan pictogram line stroke touch relations</u>	<u>Rinconada Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – horizontal & vertical (right)	Intersection – horizontal & vertical (right)	Yes
Junction – horizontal & vertical (left)	Intersection – horizontal & vertical (left)	No
Connection – vertical (right) & right curve	Connection – vertical (right) & right curve	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Qian pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 6

Total number of features N = 7

For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{6}{1 + 0 + 6} = \frac{6}{7} = 0.8571$$

For N = 7 and J = 0.8571; P = 0.01

Chart 118

Chinese Wù (5th Heavenly stem or halberd) Pictogram vs. Rinconada Canyon Glyph



Wù pictogram
Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Wù pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical (center)	Vertical (center)	Yes
Horizontal (top)	Horizontal (top)	Yes
Horizontal (middle)	Horizontal (middle)	Yes
Horizontal (bottom)	Horizontal (bottom)	Yes
Right curve	Vertical (left top)	No
None	Vertical (right)	No
None	Vertical (left bottom)	No

Part 2. Comparison of line stroke touch relations

<u>Wù pictogram line stroke touch relations</u>	<u>Rinconada Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction – vertical & horizontal (top)	Junction – vertical & horizontal (top)	Yes
Intersection – vertical & horizontal (middle)	Intersection – vertical & horizontal (middle)	Yes
Junction – vertical & horizontal (bottom)	Junction – vertical & horizontal (bottom)	Yes
Junction – horizontal (top) & right curve	Junction – horizontal (top) & vertical (left top)	Yes
None	Intersection – horizontal (top) & vertical (right)	No
None	Intersection – horizontal (bottom) & vertical (left bottom)	No
Placement – horizontal (middle) above center	Placement – horizontal (middle) above center	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Wù pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 9

Total number of features N = 14

For Index of Similarity calculation: M10 = 1; M01 = 4

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{1 + 4 + 9} = \frac{9}{14} = 0.6429$$

For N = 14 and J = 0.6429; P = 0.05

Chart 119

Chinese Shēng (grow) Pictogram vs. Rinconada Canyon Glyph



Shēng pictogram
Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Shēng pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal (top)	Horizontal	Yes
Horizontal (middle)	None	No
Horizontal (bottom)	None	No
Diagonal down	Diagonal down	Yes
Diagonal up	Diagonal up	Yes

Part 2. Comparison of line stroke touch relations

<u>Shēng pictogram line stroke touch relations</u>	<u>Rinconada Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection – diagonal down & horizontal (top)	Connection – diagonal down & horizontal	Yes
Connection – diagonal up & horizontal (top)	Connection – diagonal up & horizontal	Yes
Intersection – horizontal (top) & vertical	Intersection – horizontal & vertical	Yes
Intersection – horizontal (middle) & vertical	None	No
Junction – horizontal (bottom) & vertical	None	No

Calculation of Jaccard's Index for the comparison of the Chinese Shēng pictogram with the Rinconada Canyon petroglyph

Total number of shared features $M_{11} = 7$

Total number of features $N = 11$

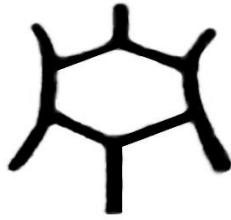
For Index of Similarity calculation: $M_{10} = 4;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{7}{4 + 0 + 7} = \frac{7}{11} = 0.6364$$

For $N = 11$ and $J = 0.6364;$ $P = 0.05$

Chart 120

Chinese Zhù (granary) Pictogram vs. Hooper Ranch Glyph



Zhù pictogram
Image: Richard Sears



Hooper Ranch glyph

Part 1. Comparison of line strokes

<u>Zhù pictogram line strokes</u>	<u>Hooper Ranch glyph line strokes</u>	<u>Shared Feature</u>
Hexagon	Hexagon	Yes
Vertical (top)	Vertical (top)	Yes
Vertical (bottom)	Vertical (bottom)	Yes
Diagonal up (top)	Diagonal up (top)	Yes
Diagonal down (top)	Diagonal down (top)	Yes
Diagonal up (bottom)	Diagonal up (bottom)	Yes
Diagonal down (bottom)	Diagonal down (bottom)	Yes
None	Dot	No

Part 2. Comparison of line stroke touch relations

<u>Zhù pictogram line stroke touch relations</u>	<u>Hooper Ranch glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction - vertical (top) & hexagon	Junction - vertical (top) & hexagon	Yes
Junction - vertical (bottom) & hexagon	Junction - vertical (bottom) & hexagon	Yes
Junction - diagonal up (top) & hexagon	Junction - diagonal up (top) & hexagon	Yes
Junction - diagonal up (bottom) & hexagon	Junction - diagonal up (bottom) & hexagon	Yes
Junction - diagonal down (top) & hexagon	Junction - diagonal down (top) & hexagon	Yes
Junction - diagonal down (bottom) & hexagon	Junction - diagonal down (bottom) & hexagon	Yes
None	Placement - dot in center of figure	No

Calculation of Jaccard's Index for the comparison of the Chinese Zhù pictogram with the Hooper Ranch petroglyph

Total number of shared features M11 = 13

Total number of features N = 15

For Index of Similarity calculation: M10 = 0; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{0 + 2 + 13} = \frac{13}{15} = 0.8667$$

For N = 15 and J = 0.8667; P < 0.001

Chart 121
Chinese Weì (large tree) Pictogram vs. 5-Mile Draw Glyph



Weì pictogram
 Image: Richard Sears



5-Mile Draw glyph

Part 1. Comparison of line strokes

<u>Weì pictogram line strokes</u>	<u>5-Mile Draw glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Arc up #1 (top branches)	Arc up #1 (top branches)	Yes
Arc up #2 (lower branches)	Arc up #2 (lower branches)	Yes
Horizontal	Horizontal	Yes
Diagonal up (left root)	Diagonal up (left root)	Yes
Diagonal down (right root)	Diagonal down (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Weì pictogram line stroke touch relations</u>	<u>5-Mile Draw glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection - vertical & arc up #1	Intersection - vertical & arc up #1	Yes
Intersection - vertical & arc up #2	Intersection - vertical & arc up #2	Yes
Intersection - vertical & horizontal	Intersection - vertical & horizontal	Yes
Junction - vertical & diagonal up	Junction - vertical & diagonal up	Yes
Junction - vertical & diagonal down	Junction - vertical & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Weì pictogram with the 5-Mile Draw petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.000$$

For N = 11 and J = 1.0000 P < 0.001

Chart 122
Chinese Lǚ (musical tone) Pictogram vs. Grapevine Canyon Glyph



Lǚ pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Lǚ pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Arc down	Arc down	Yes
Arc up	Arc up	Yes
Vertical	Vertical	Yes

Part 2. Comparison of line stroke touch relations

<u>Lǚ pictogram line stroke touch relations</u>	<u>Grapevine Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction – arc down and vertical	Junction – arc down and vertical	Yes
Junction – arc up and vertical	Junction – arc up and vertical	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Lǚ pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 5

Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.000$$

For N = 5 and J = 1.0000 P = 0.01

Chart 123

Chinese Huán (Anyang river, China) Pictogram vs. Arizona Sink Hole Glyph



Huán pictogram
Image: Bernhard Karlgren (GSR)



Arizona Sink Hole glyph

Part 1. Comparison of line strokes

<u>Huán pictogram line strokes</u>	<u>Arizona Sink Hole glyph line strokes</u>	<u>Shared Feature</u>
Chuān pictogram (left side)	Chuān pictogram #1 (left side)	Yes
Spiral #1	Spiral #1	Yes
Spiral #2	Spiral #2	Yes
Horizontal (splashing water)	Chuān pictogram #2	No

Chart 2. Comparison of line stroke touch relations

<u>Huán pictogram line stroke touch relations</u>	<u>Arizona Sink Hole glyph line stroke touch relations</u>	<u>Shared Relation</u>
Placement - chuān left of spirals	Placement - chuān #1 left of spirals	Yes
Placement - horizontal between spirals	Placement - chuān #2 between spirals	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Huán pictogram with the Arizona Sink Hole petroglyph

Total number of shared features M11 = 5

Total number of features N = 6

For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{1 + 0 + 5} = \frac{5}{6} = 0.8333$$

For N = 6 and J = 0.8333 P = 0.05

Chart 124

Chinese Yāo (young) Pictogram vs. Hooper Ranch Pueblo Glyph



Yāo pictogram
Image: Richard Sears



Hooper Ranch Pueblo glyph

Part 1. Comparison of line strokes

<u>Yāo pictogram line strokes</u>	<u>Hooper Ranch Pueblo glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (body)	Vertical #1 (body)	Yes
Horizontal (arms)	Diagonal up #1 (arms)	No
Diagonal up (left leg)	Diagonal up #2 (left leg)	Yes
Diagonal down (right leg)	Diagonal down (right leg)	Yes
Vertical #2 (hand)	Vertical #2 (hand)	Yes
Vertical #3 (hand)	Vertical #3 (hand)	Yes

Part 2. Comparison of line stroke touch relations

<u>Yāo pictogram line stroke touch relations</u>	<u>Hooper Ranch Pueblo glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – vertical #1 & horizontal	Intersection – vertical #1 & horizontal	Yes
Connection – horizontal & vertical #2	Connection – diagonal up #1 & vertical #2	Yes
Connection – horizontal & vertical #3	Connection – diagonal up #1 & vertical #3	Yes
Connection – vertical #1 & diagonal up	Connection – vertical #1 & diagonal up #2	Yes
Connection – vertical #1 & diagonal down	Connection – vertical #1 & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Yāo pictogram with the Hooper Ranch Pueblo petroglyph

Total number of shared features M11 = 10

Total number of features N = 11

For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{1 + 0 + 10} = \frac{10}{11} = 0.9091$$

For N = 11 and J = 0.9091 P = 0.001

Chart 125

Chinese Yǒng (bell) Pictogram vs. Arizona Sink Holes Glyph



Yǒng pictogram
Image: Wang Hongyuan



Arizona Sink Holes glyph

Part 1. Comparison of line strokes

<u>Yǒng pictogram line strokes</u>	<u>Arizona Sink Holes glyph line strokes</u>	<u>Shared Feature</u>
Triangle suspension ring	Triangle suspension ring	Yes
Vertical	Vertical	Yes
Right curve	Right curve	Yes
Left curve	Left curve	Yes
3 Horizontal lines (interior space)	Fill space (interior)	No

Part 2. Comparison of line stroke touch relations

<u>Yǒng pictogram line stroke touch relations</u>	<u>Arizona Sink Holes glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection - ring & vertical	Connection - ring & vertical	Yes
Junction - vertical & horizontal (top)	None	No
Junction - left curve & horizontals	Junction - left curve & fill space	Yes
Junction - right curve & horizontals	Junction - right curve & fill space	Yes
Intersection - vertical & horizontals (middle & bottom)	Intersection - vertical & fill space	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Yǒng pictogram with the Arizona Sink Holes petroglyph

Total number of shared features $M_{11} = 8$

Total number of features $N = 10$

For Index of Similarity calculation: $M_{10} = 2$; $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{8}{2 + 0 + 8} = \frac{8}{10} = 0.8000$$

For $N = 10$ and $J = 0.8000$ $P = 0.01$

Chart 126

Chinese paired Mù and Hù Pictograms (family) vs. paired Coyote Creek Glyphs



Hù pictogram

From: Chinese Text Project
(Compound image from Sears & Fazzioli)



Coyote Creek glyphs

Part 1. Comparison of Mù line strokes

<u>Mù pictogram line strokes</u>	<u>Coyote Creek glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Diagonal down #1 (left branch)	Diagonal down #1 (left branch)	Yes
Diagonal up #1 (right branch)	Diagonal up #1 (right branch)	Yes
Diagonal up #2 (left root)	Diagonal up #2 (left root)	Yes
Diagonal down #2 (right root)	Diagonal down #2 (right root)	Yes

Part 2. Comparison of Mù line stroke touch relations

<u>Mù pictogram line stroke touch relations</u>	<u>Coyote Creek glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction - diagonal down #1 & vertical above center	Junction - diagonal down #1 & vertical above center	Yes
Junction - diagonal up #1 & vertical above center	Junction - diagonal up #1 & vertical above center	Yes
Junction - diagonal up #2 & vertical below center	Junction - diagonal up #2 & vertical below center	Yes
Junction - diagonal down #2 & vertical below center	Junction - diagonal down #2 & vertical below center	Yes

Part 3. Comparison of Hù line strokes

<u>Hù pictogram line strokes</u>	<u>Coyote Creek glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (left)	Vertical #1 (left)	Yes
Vertical #2 (right)	Vertical #2 (right)	Yes
Horizontal #1 (top)	Horizontal #3 (between)	No
Horizontal #2 (middle)	Horizontal #1 (top)	Yes
Horizontal #3 (bottom)	Arc up (bottom)	Yes

Part 4. Comparison of Hù line stroke touch relations

<u>Hù Pictogram line stroke relations</u>	<u>Coyote Creek glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #2	Connection - vertical #1 & horizontal #1	Yes
Connection - vertical #1 & horizontal #3	None	No
Connection - vertical #2 & horizontal #2	Connection - vertical #2 & horizontal #1	Yes
Connection - vertical #2 & horizontal #3	Connection - vertical #2 & arc up	Yes
Placement - Horizontal #1 above figure	Placement - horizontal #3 between figures	No

Calculation of Jaccard's Index for the comparison of the paired Chinese Mù and Hù pictograms with the paired Coyote Creek petroglyphs

Total number of shared features M11 = 16

Total number of features N = 19

For Index of Similarity calculation: M10 = 3; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{16}{3 + 0 + 16} = \frac{16}{19} = 0.8421$$

For N = 19 and J = 0.8421 P < 0.001

Chart 127
Chinese Wū (shaman) Pictogram vs. Zuni Wash Glyph



Wū pictogram
Image:Richard Sears



Zuni Wash glyph

Part 1. Comparison of line strokes

<u>Wū pictogram line strokes</u>	<u>Zuni Wash glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center)	Vertical #1 (center)	Yes
Horizontal #1 (center)	Horizontal #1 (center)	Yes
Vertical #2 (right)	Vertical #2(right)	Yes
Vertical #3 (left)	Vertical #3(left)	Yes
Horizontal #2 (top)	Horizontal #2 (top)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Wū pictogram line stroke touch relations</u>	<u>Zuni Wash glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – vertical #1& horizontal #1	Intersection – vertical #1 & horizontal #1	Yes
Junction – vertical #1 & horizontal #2	Junction – vertical #1 & horizontal #2	Yes
Junction – vertical #1 & horizontal #3	Junction – vertical #1 & horizontal #2	Yes
Junction – horizontal #1 & vertical #2	Junction – horizontal #1 & vertical #2	Yes
Junction – horizontal #1 & vertical #3	Junction – horizontal #1 & vertical #3	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Wū pictogram with the Zuni Wash petroglyph

Total number of shared features M11 = 11

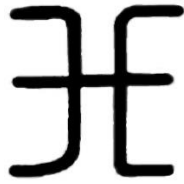
Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.000$$

For N = 11 and J = 1.0000 P < 0.001

Chart 128
Chinese Fēi (not) Pictogram vs. River Run Glyph



Fēi pictogram
 Image: Richard Sears



River Run glyph

Part 1. Comparison of line strokes

<u>Fēi pictogram line strokes</u>	<u>River Run glyph line strokes</u>	<u>Shared Feature</u>
Horizontal	Horizontal	Yes
Right curve	Right curve	Yes
Left curve	Left curve	Yes

Part 2. Comparison of line stroke touch relations

<u>Fēi pictogram line stroke touch relations</u>	<u>River Run glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – horizontal & right curve	Intersection – horizontal & right curve	Yes
Intersection – horizontal & left curve	Intersection – horizontal & left curve	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Fēi pictogram with the River Run petroglyph

Total number of shared features $M11 = 5$

Total number of features $N = 5$

For Index of Similarity calculation: $M10 = 0;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.000$$

For $N = 5$ and $J = 1.0000$ $P = 0.01$

Chart 129
Chinese Péng (friend) pictogram vs. Zuni Wash Glyph



Péng pictogram
 Image: Qiu Xigui



Zuni Wash glyph

Part 1. Comparison of line strokes

Péng pictogram line strokes

Bird profile #1 (right)
 Bird profile #2 (left)

Zuni Wash glyph line-strokes

Bird profile #1 (right)
 Bird profile #2 (left)

Shared Feature

Yes
 Yes

Part 2. Comparison of line stroke touch relations

Péng pictogram line stroke touch relations

Placement – bird profile #1 facing left
 Placement – bird profile #2 facing right
 Connection – birds at breast

Zuni Wash line stroke touch relations

Placement – bird profile #1 facing left
 Placement – bird profile #2 facing right
 Connection – birds at breast

Shared Relation

Yes
 Yes
 Yes

Calculation of Jaccard's Index for the comparison of the Chinese Péng pictogram with the Zuni Wash petroglyph

Total number of shared features $M11 = 5$

Total number of features $N = 5$

For Index of Similarity calculation: $M10 = 0; M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For $N = 5$ and $J = 1.0000$ $P = 0.01$

Chart 130
Chinese Dì (supreme god) Pictogram vs. River Run Glyph



Dì pictogram
 Image: Richard Sears



River Run glyph
 (Note: dot is bullet hole)

Part 1. Comparison of line strokes

<u>Dì pictogram line strokes</u>	<u>River Run glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical #1 (center)	Yes
Arc down #1 (center)	Arc down #1 (center)	Yes
Arc down #2 (bottom)	Arc down #2 (bottom)	Yes
Arc up	Circle	No
Horizontal	Vertical #2 (top)	No

Part 2. Comparison of line stroke touch relations

<u>Dì pictogram line stroke touch relations</u>	<u>River Run glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – vertical & arc down #1	Intersection – vertical #1 & arc down #1	Yes
Intersection – vertical & arc down #2	Intersection – vertical #1 & arc down #2	Yes
Connection – vertical & arc up	Connection – vertical #1 & circle	Yes
Junction – arc up & horizontal	Junction – circle & vertical #2	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Dì pictogram with the River Run petroglyph

Total number of shared features $M11 = 7$

Total number of features $N = 9$

For Index of Similarity calculation: $M10 = 2; \quad M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{2 + 0 + 7} = \frac{7}{9} = 0.7778$$

For $N = 9$ and $J = 0.7778$ $P = 0.01$

Chart 131
Chinese Rì (Sun) Pictogram vs. Rinconada Canyon Glyph



Rì pictogram
 Image: LiuShuTong



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Rì pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Exterior outline	Exterior outline	Yes
Curve down (interior)	Curve down (interior)	Yes

Part 2. Comparison of line stroke touch relations

<u>Rì pictogram line stroke touch relations</u>	<u>Rinconada Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Placement – curve down within exterior outline	Placement – curve down within exterior outline	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Rì pictogram with the Rinconada Canyon petroglyph

Total number of shared features $M11 = 3$

Total number of features $N = 3$

For Index of Similarity calculation: $M10 = 0; M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{3}{0 + 0 + 3} = \frac{3}{3} = 1.0000$$

For $N = 3$ and $J = 1.0000$ $P = 0.05$

Chart 132
Chinese Zǐ (child) Pictogram vs. Rinconada Canyon Glyph



Zǐ pictogram
 Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Zǐ pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Circle	Circle	Yes
Curve right	Curve right	Yes
Diagonal up	Diagonal up	Yes

Part 2. Comparison of line stroke touch relations

<u>Zǐ pictogram line stroke touch relations</u>	<u>Rinconada Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection - circle & curve right	Connection - circle & curve right	Yes
Intersection - curve right & diagonal up	Intersection - curve right & diagonal up	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Zǐ pictogram with the Rinconada Canyon petroglyph

Total number of shared features M11 = 5

Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

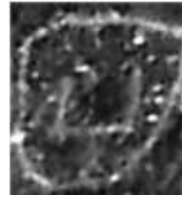
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For N = 5 and J = 1.0000 P = 0.01

Chart 133
Chinese Rì (Sun) Pictogram vs. Grapevine Canyon Glyph



Rì pictogram
 Image: LiuShuTong



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Rì pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Circular exterior	Circular exterior	Yes
Curve down (interior)	Curve down (interior)	Yes

Part 2. Comparison of line stroke touch relations

<u>Rì pictogram line stroke touch relations</u>	<u>Grapevine Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Placement – curve down within circular exterior	Placement – curve down within circular exterior	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Rì pictogram with the Grapevine Canyon petroglyph

Total number of shared features $M11 = 3$

Total number of features $N = 3$

For Index of Similarity calculation: $M10 = 0; M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{3}{0 + 0 + 3} = \frac{3}{3} = 1.0000$$

For $N = 3$ and $J = 1.0000$ $P = 0.05$

Chart 134
Chinese Lǚ (musical tone) Pictogram vs. Grapevine Canyon Glyph



Lǚ pictogram
 Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Lǚ pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Arc down	Arc down	Yes
Arc up	Arc up	Yes
Vertical	Vertical	Yes

Part 2. Comparison of line stroke touch relations

<u>Lǚ pictogram line stroke touch relations</u>	<u>Grapevine Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection - arc down and vertical	Connection - arc down and vertical	Yes
Connection - arc up and vertical	Connection - arc up and vertical	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Lǚ pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 5

Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.000$$

For N = 5 and J = 1.0000 P = 0.01

Chart 135

Chinese Lǚ (music) Pictogram vs. Grapevine Canyon Glyphs



Lǚ pictogram
Image: Richard Sears



Grapevine Canyon glyphs

Part 1. Comparison of line strokes

<u>Lǚ pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Circle #1 (top)	Circle #1 (top)	Yes
Circle #2 (bottom)	Circle #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Lǚ pictogram line stroke touch relations</u>	<u>Grapevine Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection - vertical & circle #1	Connection - vertical & circle #1	Yes
Connection - vertical & circle #2	Connection - vertical & circle #2	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Lǚ pictogram with the Grapevine Canyon petroglyphs

Total number of shared features M11 = 5

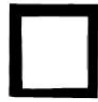
Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For N = 5 and J = 1.0000; P = 0.01

Chart 136
Chinese Lǚ (music) Pictogram vs. Grapevine Canyon Glyph



Lǚ pictogram
 Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Lǚ pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Square #1 (top)	Square #1 (top)	Yes
Square #2 (bottom)	Square #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Lǚ pictogram line stroke touch relations</u>	<u>Grapevine Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Placement – square #1 above square #2	Placement – square #1 above square #2	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Lǚ pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 3

Total number of features N = 3

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{3}{0 + 0 + 3} = \frac{3}{3} = 1.0000$$

For N = 3 and J = 1.0000; P = 0.05

Chart 137
Chinese Chū (to go out) Pictogram vs. Carr Site Glyph



Chū pictogram
Image: Richard Sears



Carr Site glyph

Part 1. Comparison of line strokes

<u>Chū pictogram line strokes</u>	<u>Carr Site glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Curve left #1 (top)	Curve left #1 (top)	Yes
Curve right #1 (top)	Curve right #1 (top)	Yes
Curve left #2 (bottom)	Curve left #2 (bottom)	Yes
Curve right #2 (bottom)	Curve right #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Chū pictogram line stroke touch relations</u>	<u>Carr Site glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction – vertical & curve left #1	Junction – vertical & curve left #1	Yes
Junction – vertical & curve right #1	Junction – vertical & curve right #1	Yes
Junction – vertical & curve left #2	Junction – vertical & curve left #2	Yes
Junction – vertical & curve right #2	Junction – vertical & curve right #2	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Chū pictogram with the Carr Site petroglyph

Total number of shared features M11 = 9

Total number of features N = 9

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For N = 9 and J = 1.0000; P < 0.001

Chart 138
Chinese Gē (halberd) Pictogram vs. Gold Butte Petroglyph



Gē pictogram
 Image: Fazzioli



Gold Butte petroglyph

Part 1. Comparison of line strokes

<u>Gē pictogram line strokes</u>	<u>Gold Butte glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center)	Vertical #1 (center)	Yes
Vertical #2 (left top)	Vertical #2 (left top)	Yes
Vertical #3 (left bottom)	Vertical #3 (left bottom)	Yes
Curve-up right	Horizontal (right top)	No
Curve right	Curve right	Yes

Part 2. Comparison of line stroke touch relations

<u>Gē pictogram line stroke relations</u>	<u>Gold Butte glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – vertical #1 & curve-up right	Conection – vertical #1 & horizontal	No
Intersection – curve right (top) & vertical #1	Intersection – curve right (top) & vertical #1	Yes
Intersection – curve right (bottom) & vertical #1	Intersection – curve right (bottom) & vertical #1	Yes
Connection – vertical #2 & curve right	Connection – vertical #2 & curve right	Yes
Connection – vertical #3 & curve right	Connection – vertical #3 & curve right	Yes

**Calculation of Jaccard's Index for the comparison of the Gē pictogram
 with the Gold Butte petroglyph**

Total number of shared features M11 = 8

Total number of features N = 10

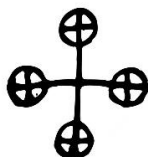
For Index of Similarity calculation: M10 = 2; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{2 + 0 + 8} = \frac{8}{10} = 0.8000$$

For N = 10 and J = 0.8000; P = 0.01

Chart 139

Chinese Léi (thunder) Pictogram vs. Gold Butte Glyph



Léi pictogram
Image: Frank Chalfant



Gold Butte glyph

Part 1. Comparison of line strokes

<u>Léi pictogram line strokes</u>	<u>Gold Butte glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal	Horizontal	Yes
Circle #1 (top)	Circle #1 (top)	Yes
Circle #2 (bottom)	Circle #2 (bottom)	Yes
Circle #3 (right)	Circle #3 (right)	Yes
Circle #4 (left)	Circle #4 (left)	Yes
X within circle #1-4	Filled-in circle #1-4	No X 4

Part 2. Comparison of line stroke touch relations

<u>Léi pictogram line stroke relations</u>	<u>Gold Butte glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal	Intersection - vertical & horizontal	Yes
Connection - circle #1 & vertical (top)	Connection - circle #1 & vertical (top)	Yes
Connection - circle #2 & vertical (bottom)	Connection - circle #2 & vertical (bottom)	Yes
Connection - circle #3 & horizontal	Connection - circle #3 & horizontal	Yes
Connection - circle #4 & horizontal	Connection - circle #4 & horizontal	Yes
Placement - X within circle #1	Placement - fill-in of circle #1	Yes
Placement - X within circle #2	Placement - fill-in of circle #2	Yes
Placement - X within circle #3	Placement - fill-in of circle #3	Yes
Placement - X within circle #4	Placement - fill-in of circle #4	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Léi pictogram with the Gold Butte glyph

Total number of shared features $M11 = 15$

Total number of features $N = 19$

For Index of Similarity calculation: $M10 = 4; M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{4 + 0 + 15} = \frac{15}{19} = 0.7895$$

For $N = 19$ and $J = 0.7895$ $P < 0.001$

Chart 140
Chinese Zhǐ (embroidery) Pictogram vs. Winslow, Arizona Glyph



Zhǐ pictogram
 Image: Richard Sears



Winslow, Arizona glyph

Part 1. Comparison of ine strokes

<u>Zhǐ pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Fringe top	None	No
Fringe bottom	None	No
None	Square outline	No
Diagonal	Diagonal	Yes
Crook #1	Crook #1	Yes
Crook #2	Crook #2	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhǐ pictogram line stroke relations</u>	<u>Winslow, Arizona line stroke relations</u>	<u>Shared Relation</u>
Junction – fringe top & diagonal	Junction – square outline & diagonal	Yes
Junction – fringe bottom & diagonal	Junction – square outline & diagonal	Yes
Junction – crook #1 & fringe top	Junction – crook #1 & square outline	Yes
Junction – crook #2 & fringe bottom	Junction – crook #2 & square outline	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Zhǐ pictogram with the Winslow, Arizona glyph

Total number of shared features M11 = 7

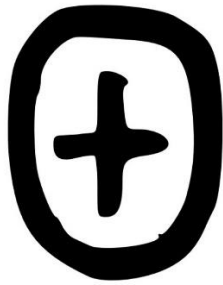
Total number of features N= 10

For Index of Similarity calculation: M10 = 2; M01 = 1

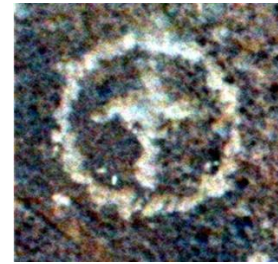
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{2 + 1 + 7} = \frac{7}{10} = 0.7000$$

For N = 10 and J = 0.7000 P = 0.05

Chart 141
Chinese Jiǎ (Sun measurement tool) Pictogram vs. Winslow, Arizona Glyph



Jiǎ pictogram
 Image: Richard Sears



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Jiǎ pictoram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Circle	Circle	Yes
Vertical	Vertical	Yes
Horizontal	Horizontal	Yes

Part 2. Comparison of line stroke touch relations

<u>Jiǎ pictogram line stroke touch relations</u>	<u>Winslow, Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – vertical & horizontal	Intersection – vertical & horizontal	Yes
Placement – plus sign within circle	Placement – plus sign within circle	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Jiǎ pictogram with the Winslow, Arizona glyph

Total number of shared features M11 = 5

Total number of features N= 5

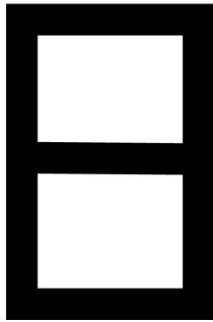
For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

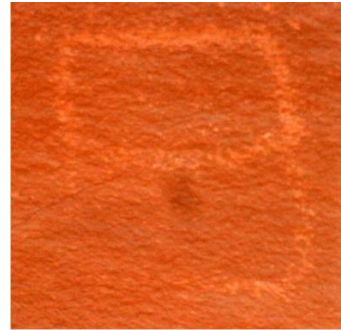
For N = 5 and J = 1.0000 P = 0.01

Chart 142

Chinese Rì (Sun) Pictogram vs. Winslow, Arizona Petroglyph



Rì pictogram
Image: Richard Sears



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Rì pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (middle)	Horizontal #2 (middle)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes
Vertical #1 (left)	Vertical #1 (left)	Yes
Vertical #2 (right)	Vertical #4 (right)	Yes

Part 2. Comparison of line stroke touch relations

<u>Rì pictogram touch relations</u>	<u>Winslow, Arizona glyph touch relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - vertical #1 & horizontal #3	Connection - vertical #1 & horizontal #3	Yes
Connection - horizontal #3 & vertical #2	Connection - horizontal #3 & vertical #2	Yes
Junction - vertical #1 & horizontal #2	Junction - vertical #3 & horizontal #2	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Rì pictogram with the Winslow, Arizona petroglyph

Total number of shared features $M_{11} = 11$

Total number of features $N = 11$

For Index of Similarity calculation:

$M_{10} = 0;$

$M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For $N = 11$ and $J = 1.0000$ $P < 0.001$

Chart 143
Chinese Rì (Sun) Pictogram vs. Winslow, Arizona Glyph



Rì pictogram
 Image: Frank Chalfant



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Rì pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (top)	Vertical #1 (top)	Yes
Vertical #2 (bottom)	Vertical #2 (bottom)	Yes
Horizontal #1 (right)	Horizontal #1 (right)	Yes
Horizontal #2 (left)	Horizontal #2 (left)	Yes
Circle	Circle	Yes
Dot	Dot	Yes

Part 2. Comparison of line stroke touch relations

<u>Rì pictogram line stroke touch relations</u>	<u>Winslow, Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction - vertical #1 & circle	Junction - vertical #1 & circle	Yes
Junction - vertical #2 & circle	Junction - vertical #2 & circle	Yes
Junction - horizontal #1 & circle	Junction - horizontal #1 & circle	Yes
Junction - horizontal #2 & circle	Junction - horizontal #2 & circle	Yes
Placement - dot in center of circle	Placement - dot in center of circle	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Rì pictogram with the Winslow, Arizona petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000; P < 0.001

Chart 144

Chinese Cǎo (Grass) Pictogram vs. Winslow, Arizona Glyph



Cǎo pictogram
Image: Richard Sears



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Cǎo pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes x 2
Diagonal up	Diagonal up	Yes x 2
Diagonal down	Diagonal down	Yes x 2

Part 2. Comparison of line stroke touch relations

<u>Cǎo pictogram line stroke touch relations</u>	<u>Winslow, Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction - vertical & diagonal up	Junction - vertical & diagonal up	Yes x 2
Junction - vertical & diagonal down	Junction - vertical & diagonal down	Yes x 2
Placement – plants side-by-side	Placement – plants side-by-side	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Cǎo pictogram with the Winslow, Arizona petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000; P < 0.001

Chart 145

Chinese Weì (large tree) Pictogram vs. Winslow, Arizona Glyph



Weì pictogram
Image: Richard Sears



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Weì pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central trunk)	Vertical (central trunk)	Yes
Arc up #1 (top branches)	Arc up (top branches)	Yes
Arc up #2 (middle branches)	Horizontal #1 (middle branches)	No
Horizontal (middle branches)	Horizontal #2 (middle branches)	Yes
Diagonal up (left root)	Diagonal up (left root)	Yes
Diagonal down (right root)	Diagonal down (right root)	Yes

Part 2. Comparison of line stroke touch relations

<u>Weì pictogram line stroke touch relations</u>	<u>Winslow, Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection - vertical & arc up #1	Intersection – vertical & arc up	Yes
Intersection – vertical & arc up #2	Intersection – vertical & horizontal #1	Yes
Intersection – vertical & horizontal	Intersection – vertical & horizontal #2	Yes
Junction – vertical & diagonal up	Junction – vertical & diagonal up	Yes
Junction – vertical & diagonal down	Junction – vertical & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Weì pictogram with the Winslow, Arizona petroglyph

Total number of shared features M11 = 10

Total number of features N = 11

For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{1 + 0 + 10} = \frac{10}{11} = 0.9091$$

For N = 11 and J = 0.9091; P = 0.001

Chart 146
Chinese Zǐ (son) Pictogram vs. Winslow, Arizona Glyph



Zǐ pictogram
 Image: Richard Sears



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Zǐ pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal	Horizontal	Yes
Circle	Circle	Yes

Part 2. Comparison of line stroke touch relations

<u>Zǐ pictogram line stroke touch relations</u>	<u>Winslow, Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal	Intersection – vertical & horizontal	Yes
Junction – vertical & circle	Junction – vertical & circle	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Zǐ pictogram with the Winslow, Arizona petroglyph

Total number of shared features M11 = 5

Total number of features N = 5

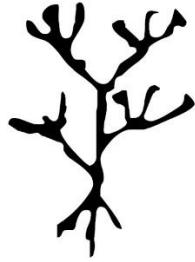
For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For N = 5 and J = 1.0000; P = 0.01

Chart 147

Chinese Sāng (Mulberry plant) Pictogram vs. Winslow, Arizona Glyph



Sāng pictogram
Image: Baidu Chinese Lexicon



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Sāng pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Vertical (stem)	Vertical (short stem)	Yes
Branch #1 (top right)	Branch #1 (right center)	Yes
Branch #2 (top left)	Branch #2 (left center)	Yes
Branch #3 (middle)	Branch #3 (right)	Yes
Branch #4 (bottom)	Branch #4 (left)	Yes
Bushy leaves (from Qiu Xigui)	Bushy leaves (from Qiu Xigui)	Yes x 4
Trifid roots	Circle	No

Part 2. Comparison of line stroke touch relations

<u>Sāng pictogram line stroke touch relations</u>	<u>Winslow, Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection – branch #1 & stem	Connection – branch #1 & stem	Yes
Connection – branch #2 & stem	Connection – branch #2 & stem	Yes
Junction – branch #3 & stem	Connection – branch #3 & stem	Yes
Junction – branch #4 & stem	Connection – branch #4 & circle	No
Connection – bushy leaves & branch	Connection – bushy leaves & branch	Yes x 4
Connection – stem to trifid roots	Connection – stem to circle	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Sāng pictogram with the Winslow, Arizona petroglyph

Total number of shared features M11 = 17

Total number of features N = 19

For Index of Similarity calculation: M10 = 2; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{17}{2 + 0 + 17} = \frac{17}{19} = 0.8947$$

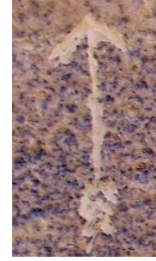
For N = 19 and J = 0.8947; P < 0.001

Chart 148

Chinese Shǐ (Arrow) Pictogram vs. Winslow, Arizona Glyph



Shǐ pictogram
Image: Wang Hongyuan



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Shǐ pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Diagonal up #1 (top)	Diagonal up #1 (top)	Yes
Diagonal down #2 (top)	Diagonal down #1 (top)	Yes
Circle	Circle	Yes
Diagonal up #2 (bottom)	Diagonal up #2 (bottom)	Yes
Diagonal down #2 (bottom)	Diagonal down #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Shǐ pictogram line stroke touch relations</u>	<u>Winslow, Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection – diagonal up #1 & vertical	Connection – diagonal up #1 & vertical	Yes
Connection – diagonal down #1 & vertical	Connection – diagonal down #1 & vertical	Yes
Connection – vertical & circle	Connection – vertical & circle	Yes
Connection – circle & diagonal up #2	Connection – circle & diagonal up #2	Yes
Connection – circle & diagonal down #2	Connection – circle & diagonal down #2	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Shǐ pictogram with the Winslow, Arizona petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000; P < 0.001

Chart 149
Chinese Zì (nurture/love) Pictogram vs. Winslow, Arizona Glyph



Zì pictogram
 Image: Richard Sears



Winslow, Arizona glyph

Part 1. Comparison of line strokes

<u>Zì pictogram line strokes</u>	<u>Winslow, Arizona glyph line strokes</u>	<u>Shared Feature</u>
Arc down	Arc down	Yes
None	Horizontal	No
Vertical	Vertical	Yes
Arc up	Arc up	Yes
Circle	Circle	Yes

Part 2. Comparison of line stroke touch relations

<u>Zì pictogram line stroke touch relations</u>	<u>Winslow, Arizona glyph line stroke touch relations</u>	<u>Shared Relation</u>
None	Connection – horizontal to arc down (right)	No
None	Connection – horizontal to arc down (left)	No
Intersection - vertical & arc up	Intersection – vertical & arc up	Yes
Junction – vertical & circle	Junction – vertical & circle	Yes
Placement – Zì figure within arc down	Placement – Zì figure within arc down	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Zì pictogram with the Winslow, Arizona petroglyph

Total number of shared features M11 = 7

Total number of features N = 10

For Index of Similarity calculation: M10 = 0; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{0 + 3 + 7} = \frac{7}{10} = 0.7000$$

For N = 10 and J = 0.7000; P = 0.05

Chart 150
Chinese Lǔ (salt) Pictogram vs. 5-Mile Wash Glyph



Chinese Lǔ pictogram
 Image: L. Wieger



5-Mile Wash glyph

Part 1. Comparison of line strokes

<u>Lǔ pictogram line strokes</u>	<u>5-Mile Wash glyph line strokes</u>	<u>Shared Feature</u>
Square outline	Square outline	Yes
Diagonal up	Diagonal up	Yes
Diagonal down	Diagonal down	Yes
Horizontal dash lines (2)	Triangle (2)	No x 2
Vertical dash lines (2)	Chevron lines (2)	No x 2
Vertical (top)	None	No
Horizontal (top)	None	No

Part 2. Comparison of line stroke touch relations

<u>Lǔ pictogram line stroke relations</u>	<u>5-Mile Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection – square & diagonal up (top right)	Intersection – square & diagonal up (top right)	Yes
Intersection – square & diagonal up (bottom left)	Intersection – square & diagonal up (bottom left)	Yes
Intersection – square & diagonal down (top left)	Intersection – square & diagonal down (top left)	Yes
Intersection – square & diagonal down (bottom right)	Intersection – square & diagonal down (bottom right)	Yes
Placement – dash within each quadrant	Placement – chevron or triangle in each quadrant	Yes x 4
Intersection – vertical & square (top)	None	No
Intersection – vertical & horizontal (top)	None	No

Calculation of Jaccard's Index for the Comparison of the Chinese Lǔ pictogram with the 5-Mile Wash glyph

Total number of shared features M11 = 11

Total number of features N = 19

For Index of Similarity calculation: M10 = 4; M01 = 4

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{4 + 4 + 11} = \frac{11}{19} = 0.5789$$

For N = 19 and J = 0.5789; P = 0.05

Chart 151

Chinese Lǔ (salt) Pictogram vs. Sandy Wash Glyph



Chinese Lǔ pictogram
Image: L. Wieger



Sandy Wash glyph

Part 1. Comparison of line strokes

<u>Lǔ pictogram line strokes</u>	<u>Sandy Wash glyph line strokes</u>	<u>Shared Feature</u>
Square outline	Square outline	Yes
Diagonal up	Diagonal up	Yes
Diagonal down	Diagonal down	Yes
Dash lines (4)	Chevron lines (4)	No x 4
Vertical (top)	Vertical (top)	Yes
Horizontal (top)	None	No

Part 2. Comparison of line stroke touch relations

<u>Lǔ pictogram line stroke relations</u>	<u>Sandy Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection – square & diagonal up (top right)	Intersection – square & diagonal up (top right)	Yes
Intersection – square & diagonal up (bottom left)	Intersection – square & diagonal up (bottom left)	Yes
Intersection – square & diagonal down (top left)	Intersection – square & diagonal down (top left)	Yes
Intersection – square & diagonal down (bottom right)	Intersection – square & diagonal down (bottom right)	Yes
Placement – dash within each quadrant	Placement – chevron within each quadrant	Yes x 4
Intersection – vertical & square (top)	Intersection – vertical & square (top)	Yes
Intersection – vertical & horizontal (top)	None	No

Calculation of Jaccard's Index for the Comparison of the Chinese Lǔ pictogram with the Sandy Wash glyph

Total number of shared features M11 = 13

Total number of features N = 19

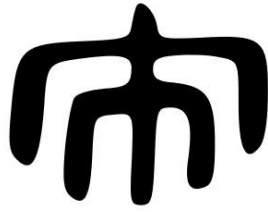
For Index of Similarity calculation: M10 = 6; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{6 + 0 + 13} = \frac{13}{19} = 0.6842$$

For N = 19 and J = 0.6842; P < 0.01

Chart 152

Chinese Jīn (double cloth) Pictogram vs. Silver Creek 5-Mile Glyph



Chinese Jīn pictogram
Image: Richard Sears



Silver Creek 5-Mile glyph

Part 1. Comparison of line strokes

<u>Jīn pictogram line strokes</u>	<u>Silver Creek 5-Mile glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Arc down #1 (top)	Arc down #1 (top)	Yes
Arc down #2 (bottom)	Arc down #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Jīn pictogram line stroke relations</u>	<u>Silver Creek 5-Mile glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection – vertical & arc down #1	Intersection – vertical & arc down #1	Yes
Intersection – vertical & arc down #2	Junction – vertical & arc down #2	No

Calculation of Jaccard's Index for the Comparison of the Chinese Jīn pictogram with the Silver Creek 5-Mile glyph

Total number of shared features $M11 = 4$

Total number of features $N = 5$

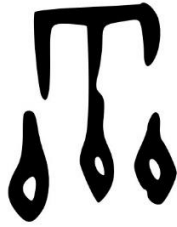
For Index of Similarity calculation: $M10 = 1;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{4}{1 + 0 + 4} = \frac{4}{5} = 0.8000$$

For $N = 5$ and $J = 0.8000$; $P = 0.05$

Chart 153

Chinese Líng (rain drops) Pictogram vs. Grapevine Canyon Glyph



Chinese Líng pictogram
Image: Richard Sears



Zuni Wash glyph

Part 1. Comparison of line strokes

<u>Líng pictogram line strokes</u>	<u>Graapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Horizontal	Horizontal	Yes
Vertical #1 (right)	Vertical #1 (right)	Yes
Vertical #2 (middle)	Vertical #2 (middle)	Yes
Vertical #3 (left)	Vertical #3 (left)	Yes
Round drop #1 (right)	Round drop #1 (right)	Yes*
Round drop #2 (middle)	Round drop #2 (middle)	Yes*
Round drop #3 (left)	Round drop #3 (left)	Yes*

Part 2. Comparison of line stroke touch relations

<u>Líng pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – horizontal & vertical #1	Junction – horizontal & vertical #1	No
Junction – horizontal & vertical #2	Junction – horizontal & vertical #2	Yes
Connection – horizontal & vertical #3	Junction – horizontal & vertical #3	No
Placement – oval #1 below vertical #1	Junction – circle #1 & vertical #1	No
Junction – oval #2 & vertical #2	Junction – circle #2 & vertical #2	Yes
Placement – oval #3 below vertical #3	Junction – circle #3 & vertical #3	No

Calculation of Jaccard's Index for the Comparison of the Chinese Líng pictogram with the Grapevine Canyon glyph

Total number of shared features M11 = 9

Total number of features N = 13

For Index of Similarity calculation: M10 = 4; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{4 + 0 + 9} = \frac{9}{13} = 0.6923$$

For N = 13 and J = 0.6923; P = 0.01

* See #446 in *Analysis of Chinese Characters, 1922*, by G.D.Wilder and J.H.Ingram for an explanation of this comparison.

Chart 154

Chinese Cǎi (to pick or gather) Pictogram vs. Cañoncito, Arizona Glyph



Chinese Cǎi pictogram
Image: Richard Sears



Cañoncito glyph

Part 1. Comparison of Line strokes

Cǎi pictogram line strokes

Hand glyph (left)
Plant glyph (Mù)

Cañoncito glyph line strokes

Hand glyph (left)
Plant glyph (Chè)

Shared Feature

Yes
Yes

Part 2. Comparison of Line stroke Touch Relations

Cǎi pictogram line stroke relations

Placement – hand to left of plant
Placement – hand facing right toward plant

Cañoncito glyph line stroke relations

Placement – hand to left of plant
Placement - hand facing right toward plant

Shared Relation

Yes
Yes

Calculation of Jaccard's Index for the Comparison of the Chinese Cǎi pictogram with the Cañoncito, Arizona glyph

Total number of shared features $M_{11} = 4$

Total number of features $N = 4$

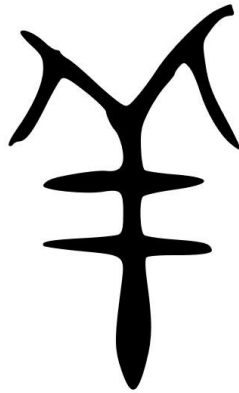
For Index of Similarity calculation: $M_{10} = 0$; $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{4}{0 + 0 + 4} = \frac{4}{4} = 1.0000$$

For $N = 4$ and $J = 1.0000$; $P = 0.05$

Note: See Bernhard Karlgren's *Grammata Serica Recensa* item #942 for explanation of the hand and plant identifications.

Chart 155
Chinese Yáng (sheep) Pictogram vs. Cañoncito, Arizona Glyph



Chinese Yáng pictogram
 Image: Richard Sears



Cañoncito glyph

Part 1. Comparison of Line strokes

<u>Yáng pictogram line strokes</u>	<u>Cañoncito glyph line strokes</u>	<u>Shared Feature</u>
Curve left (right)	Curve left (right)	Yes
Curve right (left)	Curve right (left)	Yes
Diagonal up (right)	Diagonal up (right)	Yes
Diagonal down (left)	Diagonal down (left)	Yes
Vertical	Vertical	Yes
None	Horizontal #1 (top)	No
Horizontal #1 (top)	Horizontal #2 (top middle)	Yes
Horizontal #2 (middle)	Horizontal #3 (bottom middle)	Yes
None	Horizontal #4 (bottom)	No

Part 2. Comparison of Line stroke Touch Relations

<u>Yáng pictogram line stroke relations</u>	<u>Cañoncito glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – curve left & diagonal up	Connection – curve left & diagonal up	Yes
Connection – curve right & diagonal down	Connection – curve right & diagonal down	Yes
None	Intersection – horizontal #1 & vertical	No
Intersection – horizontal #1 & vertical	Intersection – horizontal #2 & vertical	Yes
Intersection – horizontal #2 & vertical	Intersection – horizontal #3 & vertical	Yes
Intersection – horizontal #3 & vertical	Intersection – horizontal #4 & vertical	Yes

Calculation of Jaccard's Index for the Comparison of the Chinese Yáng pictogram with the Cañoncito, Arizona glyph

Total number of shared features M11 = 12

Total number of features N = 15

For Index of Similarity calculation: M10 = 0; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{12}{0 + 3 + 12} = \frac{12}{15} = 0.8000$$

For N = 15 and J = 0.8000; P = 0.001

Chart 156

Chinese Sui4 (yearly event) Pictogram vs. Mother of Game, Arizona Glyph



Chinese Sui pictogram
Images: Richard Sears



Mother of Game glyph

Part 1. Comparison of Shān line strokes

Shān pictogram line strokes

Vertical #1 (top right)
Vertical #2 (top middle)
Vertical #3 (top left)
Horizontal

Mother of Game glyph line strokes

Vertical #1 (top right)
Vertical #2 (top middle)
Vertical #3 (top left)
Horizontal

Shared Feature

Yes
Yes
Yes
Yes

Part 2. Comparison of Bù line strokes

Bù pictogram line strokes

Vertical #4 (center)
Triangle (filled-in)
Diagonal down (right bottom)
Diagonal up (left bottom)

Mother of Game glyph line strokes

Vertical #4 (center)
Triangle (filled-in)
Diagonal down (right bottom)
Diagonal up (left bottom)

Shared Feature

Yes
Yes
Yes
Yes

Part 3. Comparison of Shān line stroke touch relations

Shān pictogram line stroke relations

Connection – vertical #1 & horizontal
Junction – vertical #2 & horizontal
Connection – vertical #3 & horizontal

Mother of Game glyph line stroke relations

Connection – vertical #1 & horizontal
Junction – vertical #2 & horizontal
Connection – vertical #3 & horizontal

Shared Relation

Yes
Yes
Yes

Part 4. Comparison of Bù line stroke touch relations

Bù pictogram line stroke relations

Connection – vertical #4 & triangle
Junction – diagonal down & vertical #4
Junction – diagonal up & vertical #4
Connection – bù pictogram below shān

Mother of Game glyph line stroke relations

Connection – vertical #4 & triangle
Junction – diagonal down & vertical
Junction – diagonal up & vertical #4
Connection – bù glyph below shān

Shared Relation

Yes
Yes
Yes
Yes

Calculation of Jaccard's Index for the Comparison of the Chinese Bù and Shān pictograms with the Mother of Game, Arizona glyph

Total number of shared features M11 = 15

Total number of features N = 15

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{0 + 0 + 15} = \frac{15}{15} = 1.0000$$

For N = 15 and J = 1.0000; P < 0.001

Chart 157

Chinese Chū & Kǒu (exit) Pictogram vs. Old Route 181 Arizona Glyph



Chū & Kǒu pictograms
Images: Richard Sears



Old Route 181 petroglyph

Part 1a. Comparison of Kǒu line strokes

<u>Kǒu pictogram line strokes</u>	<u>Old Route 181 glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (right)	Vertical #1 (right)	Yes
Vertical #2 (left)	Vertical #2 (left)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 1b. Comparison of Kǒu line stroke touch relations

<u>Kǒu pictogram line stroke relations</u>	<u>Old Route 181 glyph line stroke relations</u>	<u>Shared Feature</u>
Connection – vertical #1 & horizontal #1	Connection – vertical #1 & horizontal #1	Yes
Connection – horizontal #1 & vertical #2	Connection – horizontal #1 & vertical #2	Yes
Connection – vertical #2 & horizontal #2	Connection – vertical #2 & horizontal #2	Yes
Connection – horizontal #2 & vertical #1	Connection – horizontal #2 & vertical #1	Yes

Part 2a. Comparison of Chū line strokes

<u>Chū pictogram line strokes</u>	<u>Old Route 181 glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Curve left #1 (top)	Curve left #1 (top)	Yes
Curve right #1 (top)	Curve right #1 (top)	Yes
Curve left #2 (bottom)	Curve left #2 (bottom)	Yes
Curve right #2 (bottom)	Curve right #2 (bottom)	Yes

Part 2b. Comparison of Chū line stroke touch relations

<u>Chū pictogram line stroke touch relations</u>	<u>Old Route 181 glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction – vertical & curve left #1	Junction – vertical & curve left #1	Yes
Junction – vertical & curve right #1	Junction – vertical & curve right #1	Yes
Junction – vertical & curve left #2	Junction – vertical & curve left #2	Yes
Junction – vertical & curve right #2	Junction – vertical & curve right #2	Yes
None	Junction – vertical & kǒu pictogram	No

Calculation of Jaccard's Index for the Comparison of the Chinese Kǒu and Chū pictograms with the Old Route 181 Arizona glyph

Total number of shared features M11 = 17

Total number of features N = 18

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{17}{0 + 1 + 17} = \frac{17}{18} = 0.9444$$

For N = 18 and J = 0.9444; P < 0.001

Chart 158
Chinese Lǚ (musical tone) Pictogram vs. Tenmile Draw Glyph



Lǚ pictogram
 Image: Richard Sears



Tenmile Draw glyph

Part 1. Comparison of line strokes

<u>Lǚ pictogram line strokes</u>	<u>Tenmile Draw glyph line strokes</u>	<u>Shared Feature</u>
Arc down	Arc down	Yes
Arc up	Arc up	Yes
Vertical	Vertical	Yes

Part 2. Comparison of line stroke touch relations

<u>Lǚ pictogram line stroke touch relations</u>	<u>Tenmile Draw line stroke touch relations</u>	<u>Shared Relation</u>
Connection - arc down and vertical	Connection - arc down and vertical	Yes
Connection - arc up and vertical	Connection - arc up and vertical	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Lǚ pictogram with the Tenmile Draw petroglyph

Total number of shared features M11 = 5

Total number of features N = 5

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.000$$

For N = 5 and J = 1.0000 P = 0.01

Chart 159

Chinese Rù (enter) Pictogram vs. Little Lake Ranch Glyph



Rù pictogram
Image: Richard Sears



Little Lake Ranch glyph

Part 1. Comparison of line strokes

<u>Rù pictogram line strokes</u>	<u>Little Lake Ranch glyph line strokes</u>	<u>Shared Feature</u>
Curve right 1 (right top)	Curve right 1 (right top)	Yes
Curve left 1 (right center)	Curve left 1 (right center)	Yes
Curve right 2 (right bottom)	Curve right 2 (right bottom)	Yes
Curve left 2 (left top)	Curve left 2 (left top)	Yes
Curve right 3 (left center)	Curve right 3 (left center)	Yes
Curve left 3 (left bottom)	Curve left 3 (left bottom)	Yes
Vertical (top)	None	No
None	Vertical 1 (right bottom)	No
None	Vertical 2 (left bottom)	No

Part 2. Comparison of line stroke touch relations

<u>Rù pictogram line stroke touch relations</u>	<u>Little Lake Ranch glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection – curve right 1 & curve left 1	Connection – curve right 1 & curve left 1	Yes
Connection – curve left 1 & curve right 2	Connection – curve left 1 & curve right 2	Yes
Connection – curve left 2 & curve right 3	Connection – curve left 2 & curve right 3	Yes
Connection – curve right 3 & curve left 3	Connection – curve right 3 & curve left 3	Yes
Connection – curve right 1 & curve left 2	Connection – curve right 1 & curve left 2	Yes
None	Connection – vertical 1 & curve right 2	No
None	Connection – vertical 2 & curve left 3	No
Junction – vertical & resulting top line	None	No

Calculation of Jaccard's Index for the comparison of the Chinese Rù pictogram with the Little Lake Ranch petroglyph

Total number of shared features M11 = 11

Total number of features N = 17

For Index of Similarity calculation: M10 = 2; M01 = 4

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{2 + 4 + 11} = \frac{11}{17} = 0.6471$$

For N = 17 and J = 0.6471 P = 0.01

Chart 160

Chinese Rù (enter) Pictogram vs. Grapevine Canyon Glyph



Rù pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Rù pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Curve right 1 (right top)	Curve right 1 (right top)	Yes
Curve left 1 (right center)	Curve left 1 (right center)	Yes
Curve right 2 (right bottom)	Curve right 2 (right bottom)	Yes
Curve left 2 (left top)	Curve left 2 (left top)	Yes
Curve right 3 (left center)	Curve right 3 (left center)	Yes
Curve left 3 (left bottom)	Curve left 3 (left bottom)	Yes
Vertical (top)	None	No

Part 2. Comparison of line stroke touch relations

<u>Rù pictogram line stroke touch relations</u>	<u>Grapevine Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection – curve right 1 & curve left 1	Connection – curve right 1 & curve left 1	Yes
Connection – curve left 1 & curve right 2	Connection – curve left 1 & curve right 2	Yes
Connection – curve left 2 & curve right 3	Connection – curve left 2 & curve right 3	Yes
Connection – curve right 3 & curve left 3	Connection – curve right 3 & curve left 3	Yes
Connection – curve right 1 & curve left 2	Connection – curve right 1 & curve left 2	Yes
None	Connection – curve right 2 & curve left 3	No
Junction – vertical & resulting top line	None	No

Calculation of Jaccard's Index for the comparison of the Chinese Rù pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 11

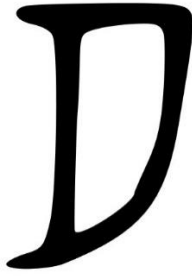
Total number of features N = 14

For Index of Similarity calculation: M10 = 1; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{1 + 2 + 11} = \frac{11}{14} = 0.7857$$

For N = 14 and J = 0.7857 P = 0.001

Chart 161
Chinese Yuè (Moon) Pictogram vs. Surprise Tank Glyph



Yuè pictogram
 Image: Liushutong



Surprise Tank glyph

Part 1. Comparison of line strokes

Yuè pictogram line strokes

Curve right
 Vertical

Surprise Tank glyph line strokes

Curve right
 Vertical

Shared Feature

Yes
 Yes

Part 2. Comparison of line stroke touch relations

Yuè pictogram line stroke touch relations

Junction – vertical and top of curve right
 Junction – vertical and bottom of curve right

Surprise Tank glyph line stroke touch relations

Junction – vertical and top of curve right
 Junction – vertical and bottom of curve right

Shared Relation

Yes
 Yes

Calculation of Jaccard's Index for the comparison of the Chinese Yuè pictogram with the Surprise Tank petroglyph

Total number of shared features $M11 = 4$

Total number of features $N = 4$

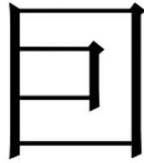
For Index of Similarity calculation: $M10 = 0;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{4}{0 + 0 + 4} = \frac{4}{4} = 1.0000$$

For $N = 4$ and $J = 1.0000$ $P = 0.05$

Chart 162

Chinese Yīn (cause) Pictogram vs. Hunt site Glyph



Yīn pictogram
Image: Chinese Text Project



Hunt site glyph

Part 1. Comparison of line strokes

Yīn pictogram line strokes

Square outline
Sideways “U” symbol

Hunt site glyph line strokes

Square outline
Sideways “U” symbol

Shared Feature

Yes
Yes

Part 2. Comparison of line stroke touch relations

Yīn pictogram line stroke touch relations

Junction – top line of “U” with vertical left
Junction – bottom line of “U” with vertical left
Placement – “U” symbol inside of square

Hunt site glyph line stroke touch relations

Junction – top of “U” symbol with vertical left
Junction – bottom line of “U” with vertical left
Placement – “U” symbol inside of square

Shared Relation

Yes
Yes
Yes

Calculation of Jaccard’s Index for the comparison of the Chinese Yīn pictogram with the Hunt site petroglyph

Total number of shared features $M11 = 5$

Total number of features $N = 5$

For Index of Similarity calculation: $M10 = 0$; $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{0 + 0 + 5} = \frac{5}{5} = 1.0000$$

For $N = 5$ and $J = 1.0000$ $P = 0.01$

Chart 163

Chinese Shǐ (hand holding stylus) Pictogram vs. River Run Glyph



Yīn pictogram
Image: Richard Sears



Shǐ pictogram
Image: Richard Sears



River Run glyph

Part 1. Comparison of hand line strokes

Yīn pictogram line strokes (red)

Horizontal
Diagonal up
Diagonal down

River Run glyph line strokes

Horizontal
Diagonal up
Diagonal down

Shared Feature

Yes
Yes
Yes

Part 2. Comparison of hand line stroke touch relations

Yīn pictogram line stroke touch relations (red)

Junction – horizontal & diagonal up
Junction – horizontal & diagonal down

River Run glyph line stroke touch relations

Junction – horizontal & diagonal up
Junction – horizontal & diagonal down

Shared Relation

Yes
Yes

Part 3. Comparison of stylus line strokes

Shǐ pictogram line strokes (red)

Vertical
Diagonal up
Diagonal down
None

River Run glyph line strokes

Vertical
Diagonal up
Diagonal down
Circle

Shared Feature

Yes
Yes
Yes
No

Part 4. Comparison of hand line stylus touch relations

Shǐ pictogram line stroke touch relations (red)

Junction – vertical & diagonal up
Junction – vertical & diagonal down
None

River Run glyph line stroke touch relations

Junction – vertical & diagonal up
Junction – vertical & diagonal down
Connection – vertical & circle

Shared Relation

Yes
Yes
No

Part 5. Comparison of hand and stylus line stroke touch relations

Shǐ pictogram line stroke touch relations

Intersection – hand & stylus

River Run glyph line stroke touch relations

Intersection – hand & stylus

Shared Relation

Yes

Calculation of Jaccard's Index for the comparison of the Chinese Yīn hand & Shǐ stylus pictograms with the River Run petroglyph

Total number of shared features $M_{11} = 11$

Total number of features $N = 13$

For Index of Similarity calculation: $M_{10} = 0;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0$$

For $N = 13$ and $J = 1.0$ $P = 0.001$

Chart 164

Chinese Yīn (hand holding a pole net) Pictogram vs. Zuni Wash Glyph



Yīn pictogram
Image: Wang Hongyuan



Zuni Wash glyph

Part 1. Comparison of hand (shǒu) line strokes

<u>Shǒu pictogram line strokes</u>	<u>Coyote Creek glyph line strokes</u>	<u>Shared Feature</u>
Horizontal	Horizontal	Yes
Diagonal up	Diagonal up #1	Yes
None	Diagonal up #2	No
Diagonal down	Diagonal down #1	Yes
None	Diagonal down #2	No
None	Vertical	No

Part 2. Comparison of hand (shǒu) line stroke touch relations

<u>Shǒu pictogram line stroke touch relations</u>	<u>Coyote Creek glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction – horizontal & diagonal up	Junction – horizontal & diagonal up #1	Yes
None	Junction – horizontal & diagonal up #2	No
Junction – horizontal & diagonal down	Junction – horizontal & diagonal down #1	Yes
None	Junction – horizontal & diagonal down #2	No
None	Intersection – horizontal & vertical	No

Part 3. Comparison of pole net (bì) line strokes

<u>Bì pictogram line strokes</u>	<u>Zuni Wash glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Arc up	Arc up	Yes
X shape interior	X shape interior	Yes

Part 4. Comparison of pole net line stroke touch relations

<u>Bì pictogram line stroke touch relations</u>	<u>Zuni Wash glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction – vertical & arc up	Junction – vertical & arc up	Yes
Placement – X within arc up	Placement X within arc up	Yes

Part 5. Comparison of Yīn & Zuni Wash glyph line stroke touch relations

<u>Yīn pictogram line stroke touch relations</u>	<u>Zuni Wash glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – Shǒu & Bì below arc up	Intersection – Shǒu & Bì below arc up	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Yīn pictogram with the Zuni Wash site petroglyph

Total number of shared features M11 = 11

Total number of features N = 17

For Index of Similarity calculation: M10 = 0; M01 = 6

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 6 + 11} = \frac{11}{17} = 0.6471$$

For N = 17 and J = 0.6471 P = 0.01

Chart 165

Chinese Shǐ (hand holding stylus) Pictogram vs. Coyote Creek Glyph



Yīn pictogram
Image: Richard Sears



Shǐ pictogram
Image: Richard Sears



Coyote Creek glyph

Part 1. Comparison of hand line strokes

Yīn pictogram line strokes

Horizontal
Diagonal up
Diagonal down

Coyote Creek glyph line strokes

Horizontal
Diagonal up
Diagonal down

Shared Feature

Yes
Yes
Yes

Part 2. Comparison of hand line stroke touch relations

Yīn pictogram line stroke touch relations

Junction – horizontal & diagonal up
Junction – horizontal & diagonal down

Coyote Creek glyph line stroke touch relations **Shared Relation**

Junction – horizontal & diagonal up
Junction – horizontal & diagonal down

Yes
Yes

Part 3. Comparison of stylus line strokes

Shǐ pictogram line strokes

Vertical
Diagonal up
Diagonal down

Coyote Creek glyph line strokes

Vertical
Diagonal up
Diagonal down

Shared Feature

Yes
Yes
Yes

Part 4. Comparison of hand line stylus touch relations

Shǐ pictogram line stroke touch relations

Junction – vertical & diagonal up
Junction – vertical & diagonal down

Coyote Creek glyph line stroke touch relations

Junction – vertical & diagonal up
Junction – vertical & diagonal down

Shared Relation

Yes
Yes

Part 5. Comparison of hand and stylus line stroke touch relations

Shǐ pictogram line stroke touch relations

Intersection – hand & stylus

Coyote Creek glyph line stroke touch relations

Intersection – hand & stylus

Shared Relation

Yes

Calculation of Jaccard's Index for the comparison of the Chinese Yīn hand & Shǐ stylus pictograms with the Coyote Creek petroglyph

Total number of shared features $M_{11} = 11$

Total number of features $N = 11$

For Index of Similarity calculation: $M_{10} = 0;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For $N = 11$ and $J = 1.0000$ $P < 0.001$

Chart 166
Chinese Wǒ (me or I) Pictogram vs. Silver Creek Glyph



Wǒ pictogram
 Image: Richard Sears



Silver Creek glyph

Part 1. Comparison of line strokes

<u>Wǒ pictogram line strokes</u>	<u>Silver Creek glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal #1	Horizontal #1	Yes
Horizontal #2	Horizontal #2	Yes
Diagonal down	Diagonal down #1	Yes
None	Diagonal down #2	No
Diagonal up	Diagonal up #1	Yes
None	Diagonal up #2	No
Curve-down left	None	No

Part 2. Comparison of line stroke touch relations

<u>Wǒ pictogram line stroke touch relations</u>	<u>Silver Creek glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction – vertical & horizontal #1	Junction – vertical & horizontal #1	Yes
Intersection – vertical & horizontal #2	Intersection – vertical & horizontal #2	Yes
Intersection – vertical & curve-down left	None	No
Junction – horizontal & diagonal down	Junction – horizontal & diagonal down #1	Yes
None	Junction – horizontal & diagonal down #2	No
Junction – horizontal & diagonal up	Junction – horizontal & diagonal up #1	Yes
None	Junction – horizontal & diagonal up #2	No

Calculation of Jaccard's Index for the comparison of the Chinese Wǒ pictogram with the Silver Creek site petroglyph

Total number of shared features M11 = 9

Total number of features N = 15

For Index of Similarity calculation:

M10 = 1;

M01 = 5

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{1 + 5 + 9} = \frac{9}{15} = 0.6000$$

For N = 15 and J = 0.6000 P = 0.05

Chart 167

Chinese Shǐ (history) Pictogram vs. Rinconada Canyon Glyph



Shǐ pictogram
Image: Richard Sears



Rinconada Canyon glyph

Part 1. Comparison of line strokes

<u>Shǐ pictogram line strokes</u>	<u>Rinconada Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Curve left	Curve left	Yes
Curve right	Curve right	Yes
Wavy line	Arc down #1	No
Horizontal #2 (bottom)	Arc down #2 (bottom)	No

Part 2. Comparison of line stroke touch relations

<u>Shǐ pictogram line stroke touch relations</u>	<u>Rinconada Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – vertical & horizontal #1	Intersection – vertical & horizontal #1	Yes
Junction – horizontal #1 & curve left	Junction – horizontal #1 & curve left	Yes
Junction – horizontal #1 & curve right	Junction – horizontal #1 & curve right	Yes
Junction – vertical & curve left	Junction – vertical & curve left	Yes
Junction – vertical & curve right	Junction – vertical & curve right	Yes
Junction – vertical & wavy line	Junction – vertical & arc down	Yes
Junction – vertical & horizontal #2	Junction – vertical & arc down #2	Yes
Junction – wavy line & horizontal #2	None	No

Calculation of Jaccard's Index for the comparison of the Chinese Shǐ pictogram with the Rinconada Canyon site petroglyph

Total number of shared features M11 = 11

Total number of features N = 14

For Index of Similarity calculation:

M10 = 1;

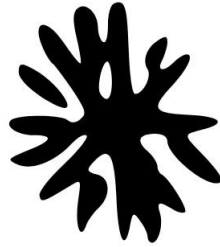
M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{1 + 2 + 11} = \frac{11}{14} = 0.7857$$

For N = 14 and J = 0.7857 P = 0.001

Chart 168

Chinese Liaò (fuel for sacrifice) Pictogram vs. Chevelon Canyon Glyph



Liaò pictogram
Image: Richard Sears



Chevelon Canyon glyph

Part 1. Comparison of line strokes

<u>Liaò pictogram line strokes</u>	<u>Chevelon Canyon glyph line strokes</u>	<u>Shared Feature</u>
Center circle	Center circle	Yes
Y-shape x 7	Y-shape x 7	Yes x 7
Diagonal down	None	No
Vertical	None	No

Part 2. Comparison of line stroke touch relations

<u>Liaò pictogram line stroke touch relations</u>	<u>Chevelon Canyon glyph line stroke touch relations</u>	<u>Shared Relation</u>
Junction - Y-shape & center circle	Junction - Y-shape & center circle	Yes x 6
None	Placement – Y-shape below circle	No
Junction – vertical & center circle	None	No
Placement – diagonal down left of center	None	No

Calculation of Jaccard's Index for the comparison of the Chinese Liaò pictogram with the Chevelon Canyon site petroglyph

Total number of shared features $M11 = 14$

Total number of features $N = 19$

For Index of Similarity calculation:

$M10 = 4;$

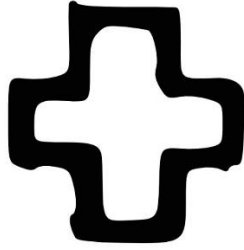
$M01 = 1$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{14}{4 + 1 + 14} = \frac{14}{19} = 0.7368$$

For $N = 19$ and $J = 0.7368$ $P = 0.001$

Chart 169

Chinese Yà (Asia or Second) Pictogram vs. Puerco Pueblo Glyph



Yà pictogram
Image: Richard Sears



Puerco Pueblo glyph

Part 1. Comparison of line strokes

<u>Yà pictogram line strokes</u>	<u>Puerco Pueblo glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (right side top)	Vertical #1 (right side top)	Yes
Vertical #2 (right side)	Vertical #2 (right side)	Yes
Vertical #3 (right side bottom)	Vertical #3 (right side bottom)	Yes
Vertical #4 (left side bottom)	Vertical #4 (left side bottom)	Yes
Vertical #5 (left side)	Vertical #5 (left side)	Yes
Vertical #6 (left side top)	Vertical #6 (left side top)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (right side top)	Horizontal #2 (right side top)	Yes
Horizontal #3 (right side bottom)	Horizontal #3 (right side bottom)	Yes
Horizontal #4 (bottom)	Horizontal #4 (bottom)	Yes
Horizontal #5 (left side bottom)	Horizontal #5 (left side bottom)	Yes
Horizontal #6 (left side top)	Horizontal #6 (left side top)	Yes

Part 2. Comparison of line stroke touch relations

<u>Yà pictogram line stroke touch relations</u>	<u>Puerco Pueblo glyph line stroke touch relations</u>	<u>Shared Relation</u>
Connection – vertical #1 & horizontal #2	Connection – vertical #1 & horizontal #2	Yes
Connection – horizontal #2 & vertical #2	Connection – horizontal #2 & vertical #2	Yes
Connection – vertical #2 & horizontal #3	Connection – vertical #2 & horizontal #3	Yes
Connection – horizontal #3 & vertical #3	Connection – horizontal #3 & vertical #3	Yes
Connection – vertical #3 & horizontal #4	Connection – vertical #3 & horizontal #4	Yes
Connection – horizontal #4 & vertical #4	Connection – horizontal #4 & vertical #4	Yes
Connection – vertical #4 & horizontal #5	Connection – vertical #4 & horizontal #5	Yes
Connection – horizontal #5 & vertical #5	Connection – horizontal #5 & vertical #5	Yes
Connection – vertical #5 & horizontal #6	Connection – vertical #5 & horizontal #6	Yes
Connection – horizontal #6 & vertical #6	Connection – horizontal #6 & vertical #6	Yes
Connection – vertical #6 & horizontal #1	Connection – vertical #6 & horizontal #1	Yes
Connection – horizontal #1 & vertical #1	Connection – horizontal #1 & vertical #1	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Yà pictogram with the Puerco Pueblo petroglyph

Total number of shared features M11 = 24

Total number of features N = 24

For Index of Similarity calculation:

M10 = 0;

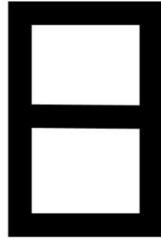
M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{24}{0 + 0 + 24} = \frac{24}{24} = 1.0000$$

For N = 24 and J = 1.0000 P < 0.001

Chart 170

Chinese Rì (Sun) Pictogram vs. 5-Mile Draw, Arizona Petroglyph



Rì pictogram
Image: Richard Sears



5-Mile Draw, Arizona glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Rì pictogram line strokes</u>	<u>5-Mile Draw, Arizona glyph line strokes</u>	<u>Shared Relation</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (middle)	Horizontal #2 (middle)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes
Vertical #1 (left)	Vertical #1 (left)	Yes
Vertical #2 (right)	Vertical #4 (right)	Yes

Part 2. Comparison of line stroke touch relations

<u>Rì pictogram touch relations</u>	<u>5-Mile Draw, Arizona glyph touch relations</u>	<u>Shared Feature</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - vertical #1 & horizontal #3	Connection - vertical #1 & horizontal #3	Yes
Connection - horizontal #3 & vertical #2	Connection - horizontal #3 & vertical #2	Yes
Junction - vertical #1 & horizontal #2	Junction - vertical #3 & horizontal #2	Yes
Junction - horizontal #2 & vertical #2	Junction - horizontal #2 & vertical #2	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Rì pictogram with the 5-Mile Draw, Arizona petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000 P < 0.001

Chart 171

Chinese Rù (enter) Pictogram vs. Coyote Creek Glyph



Rù pictogram
Image: Richard Sears



Coyote Creek glyph

Part 1. Comparison of line strokes

<u>Rù pictogram line strokes</u>	<u>Coyote Creek glyph line strokes</u>	<u>Shared Feature</u>
Vertical (top)	None	No
Horizontal (top)	Horizontal (top)	Yes
Vertical #1 (right top)	Vertical #1 (right top)	Yes
Vertical #2 (left top)	Vertical #2 (left top)	Yes
Horizontal #1 (right top)	Horizontal #1 (right top)	Yes
Horizontal #2 (left top)	Horizontal #2 (left top)	Yes
Vertical #3 (right center top)	Vertical #3 (right center top)	Yes
Vertical #4 (left center top)	Vertical #4 (left center top)	Yes
Horizontal #3 (right center)	Horizontal #3 (left center)	Yes
Horizontal #4 (left center)	Horizontal #4 (left center)	Yes
Vertical #5 (right center bottom)	Vertical #5 (right center bottom)	Yes
Vertical #6 (left center bottom)	Vertical #6 (left center bottom)	Yes
Horizontal #5 (right bottom)	Horizontal #5 (right bottom)	Yes
Horizontal #6 (left bottom)	Horizontal #6 (left bottom)	Yes
None	Vertical #7 (right bottom)	No
None	Vertical #8 (left bottom)	No

Part 2. Comparison of line stroke touch relations

<u>Rù pictogram line stroke relations</u>	<u>Coyote Creek glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – vertical top center & horizontal top	None	No
Connection – horizontal top & vertical #1	Connection – horizontal top & vertical #1	Yes
Connection – horizontal top & vertical #2	Connection – horizontal top & vertical #2	Yes
Connection – vertical #1 & horizontal #1	Connection – vertical #1 & horizontal #1	Yes
Connection – vertical #2 & horizontal #2	Connection – vertical #2 & horizontal #2	Yes
Connection – horizontal #1 & vertical #3	Connection – horizontal #1 & vertical #3	Yes
Connection – horizontal #2 & vertical #4	Connection – horizontal #2 & vertical #4	Yes
Connection – vertical #3 & horizontal #3	Connection – vertical #3 & horizontal #3	Yes
Connection – vertical #4 & horizontal #4	Connection – vertical #4 & horizontal #4	Yes
Connection – horizontal #3 & vertical #5	Connection – horizontal #3 & vertical #5	Yes
Connection – horizontal #4 & vertical #6	Connection – horizontal #4 & vertical #6	Yes
Connection – vertical #5 & horizontal #5	Connection – vertical #5 & horizontal #5	Yes
Connection – vertical #6 & horizontal #6	Connection – vertical #6 & horizontal #6	Yes
None	Connection – horizontal #5 & vertical #7	No
None	Connection – horizontal #6 & vertical #8	No

- Chart continued on the following page -

**Calculation of Jaccard's Index for the comparison of the Chinese Rù pictogram
with the Coyote Creek petroglyph**

Total number of shared features $M_{11} = 26$

Total number of features $N = 31$

For Index of Similarity calculation: $M_{10} = 1;$ $M_{01} = 4$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{26}{1 + 4 + 26} = \frac{26}{31} = 0.8387$$

For $N = 31$ and $J = 0.8387$ $P < 0.001$

Chart 172

Chinese Miáo (sprouts) Pictogram vs. Butler Wash Glyph



Miáo pictogram
Image: L. Wieger



Butler Wash glyph

Part 1a. Comparison of Tián line strokes

<u>Tián pictogram line strokes</u>	<u>Butler Wash glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal	Horizontal	Yes
Rectangle	Rectangle	Yes

Part 1b. Comparison of Cǎo line strokes

<u>Cǎo pictogram line strokes</u>	<u>Butler Wahs glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes x 2
Arc up	Arc up	Yes x 2

Part 2a. Comparison of Tián line stroke touch relations

<u>Tián pictogram line stroke relations</u>	<u>Butler Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal	Intersection - vertical & horizontal	Yes
Junction - vertical & rectangle (top)	Junction - vertical & rectangle (top)	Yes
Junction - vertical & rectangle (bottom)	Junction - vertical & rectangle (bottom)	Yes
Junction - horizontal & rectangle (right)	Junction - horizontal & rectangle (right)	Yes
Junction - horizontal & rectangle (left)	Junction - horizontal & rectangle (left)	Yes

Part 2b. Comparison of Cǎo line stroke touch relations

<u>Cǎo pictogram line stroke relations</u>	<u>Butler Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & arc up	Intersection - vertical & arc up	Yes x 2
Placement – plants side-by-side	Placement – plants side-by-side	Yes
Junction – vertical & rectangle (top right corner)	Junction – vertical & rectangle (top right corner)	Yes
Junction – vertical & rectangle (top left corner)	Junction – vertical & rectangle (top left corner)	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Miáo pictogram with the Butler Wash petroglyph

Total number of shared features M11 = 17

Total number of features N = 17

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{17}{0 + 0 + 17} = \frac{17}{17} = 1.0000$$

For N = 17 and J = 1.0000 P < 0.001

Chart 173
Chinese Qiú (prisoner) Pictogram vs. Butler Wash Glyph



Qiú pictogram

Image: Chinese Text Project



Butler Wash glyph

Part 1. Comparison of line strokes

<u>Qiú pictogram line strokes</u>	<u>Butler Wash glyph line strokes</u>	<u>Shared Feature</u>
Circle (outline)	Circle (outline)	Yes
Vertical	Vertical	Yes
Diagonal up (left arm)	Diagonal up (left arm)	Yes
Diagonal down (right arm)	Diagonal down (right arm)	Yes
Arc down (legs)	Arc down (legs)	Yes

Part 2. Comparison of line stroke touch relations

<u>Qiú pictogram line stroke relations</u>	<u>Butler Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – vertical & diagonal up	Junction – vertical & diagonal up	Yes
Junction – vertical & diagonal down	Junction – vertical & diagonal down	Yes
Junction – vertical & arc down	Junction – vertical & arc down	Yes
Placement – stickman (Da4) inside circle	Placement – stickman (Da4) inside circle	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Qiú pictogram with the Butler Wash petroglyph

Total number of shared features M11 = 9

Total number of features N = 9

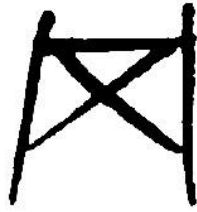
For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For N = 17 and J = 1.0000 P < 0.001

Chart 174

Chinese Wǎng (net) Pictogram vs. Mother of Game Glyph



Wǎng pictogram
Image: Wang Hongyuan



Mother of Game glyph

Part 1. Comparison of line strokes

<u>Wǎng pictogram line strokes</u>	<u>Mother of Game glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (right side)	Vertical #1 (right side)	Yes
Vertical #2 (left side)	Vertical #2 (left side)	Yes
Horizontal	Horizontal (top)	Yes
None	Horizontal (bottom)	No
Diagonal up	Diagonal up	Yes
Diagonal down	Diagonal down	Yes

Part 2. Comparison of line stroke touch relations

<u>Wǎng pictogram line stroke relations</u>	<u>Mother of Game glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – vertical #1 & horizontal	Connection – vertical #1 & horizontal (top)	No
Junction – vertical #2 & horizontal	Connection – vertical #2 & horizontal (top)	No
Junction – diagonal up & vertical #1	Junction – diagonal up & vertical #1	Yes
Junction – diagonal up & vertical #2	Junction – diagonal up & vertical #2	Yes
Junction – diagonal down & vertical #1	Junction – diagonal down & vertical #1	Yes
Junction – diagonal down & vertical #2	Junction – diagonal down & vertical #2	Yes
None	Junction – horizontal #2 & vertical #1	No
None	Junction – horizontal #2 & vertical #2	No
Intersection – diagonals up & down	Intersection – diagonals up & down	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Wǎng in pictogram with the Mother of Game petroglyph

Total number of shared features M11 = 10

Total number of features N = 15

For Index of Similarity calculation: M10 = 2; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{2 + 3 + 10} = \frac{10}{15} = 0.6667$$

For N = 15 and J = 0.6667 P = 0.01

Chart 175

Chinese Yǐ (with) Pictogram vs. Grapevine Canyon Glyph



Yǐ pictogram
Image: L. Wieger



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Yǐ pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (left)	Vertical #1 (left)	Yes
Vertical #2 (right top)	Vertical #2 (right top)	Yes
Vertical #3 (right bottom)	Vertical #3 (right bottom)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (top middle)	Horizontal #2 (top middle)	Yes
Horizontal #3 (bottom middle)	Horizontal #3 (bottom middle)	Yes
Horizontal #4 (bottom)	Horizontal #4 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Yǐ pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – vertical #1 & horizontal #1	Connection – vertical #1 & horizontal #1	No
Connection – horizontal #1 & vertical #2	Connection – horizontal #1 & vertical #2	Yes
Connection – vertical #2 & horizontal #2	Connection – vertical #2 & horizontal #2	Yes
Junction – horizontal #2 & vertical #1	Junction – horizontal #2 & vertical #1	Yes
Junction – vertical #1 & horizontal #3	Junction – vertical #1 & horizontal #3	Yes
Connection – horizontal #3 & vertical #3	Connection – horizontal #3 & vertical #3	Yes
Connection – vertical #3 & horizontal #4	Connection – vertical #3 & horizontal #4	Yes
Junction – horizontal #4 & vertical #1	Connection – horizontal #4 & vertical #1	No

Calculation of Jaccard's Index for the comparison of the Chinese Qiú pictogram with the Butler Wash petroglyph

Total number of shared features M11 = 15

Total number of features N = 13

For Index of Similarity calculation: M10 = 2; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{15}{2 + 0 + 15} = \frac{15}{17} = 0.88235$$

For N = 17 and J = 0.88235 P < 0.001

Chart 176

Chinese Zhèn (Irrigation) Pictogram vs. Grapevine Canyon Glyph



Zhèn pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1a. Comparison of Shuǐ line strokes

<u>Shuǐ pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Diagonals line 1 (alternating down-up-down)	Diagonals line 1 (alternating down-up-down)	Yes
Diagonals line 2 (alternating down-up-down)	Diagonals line 2 (alternating down-up-down)	Yes
Diagonals line 3 (alternating down-up-down)	Diagonals line 3 (alternating down-up-down)	Yes

Part 1b. Comparison of Tían line strokes

<u>Tían pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1	Vertical	Yes
Horizontal	Horizontal	Yes
Arc down	Arc down	Yes
Arc up	Arc up	Yes

Part 2a. Comparison of Shuǐ line stroke touch relations

<u>Shuǐ pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Diagonals line 1 - end of down diagonal to start of up diagonal	Diagonals line 1 - end of down diagonal to start of up diagonal	Yes
- end of up diagonal to start of down diagonal	- end of up diagonal to start of down diagonal	Yes
Diagonals line 2 - end of down diagonal to start of up diagonal	Diagonals line 2 - end of down diagonal to start of up diagonal	Yes
- end of up diagonal to start of down diagonal	- end of up diagonal to start of down diagonal	Yes
Diagonals line 3 - end of down diagonal to start of up diagonal	Diagonals line 3 - end of down diagonal to start of up diagonal	Yes
- end of up diagonal to start of down diagonal	- end of up diagonal to start of down diagonal	Yes

Part 2b. Comparison of Tían line stroke touch relations

<u>Tían pictogram line strokes</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal	Intersection - vertical & horizontal	Yes
Junction - vertical & arc down	Junction - vertical & arc down	Yes
Junction - vertical & arc up	Junction - vertical & arc up	Yes
Junction - horizontal & arc connection point	Junction - horizontal & arc connection point	Yes
Junction - horizontal & arc connection point	Junction - horizontal & arc connection point	Yes
Connection - arc down & arc up (left)	Connection - arc down & arc up (left)	Yes
Connection - arc down & arc up (right)	Connection - arc down & arc up (right)	Yes

- Chart continued on the following page -

**Calculation of Jaccard's Index for the comparison of the Chinese Zhèn pictogram
with the Grapevine Canyon petroglyph**

Total number of shared features $M_{11} = 20$

Total number of features $N = 20$

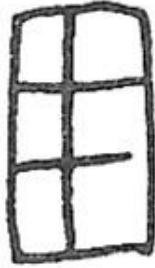
For Index of Similarity calculation: $M_{10} = 0;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{20}{0 + 0 + 20} = \frac{20}{20} = 1.0000$$

For $N = 20$ and $J = 1.0000$ $P < 0.001$

Chart 177

Chinese Tián (field) Pictogram vs. Grapevine Canyon Petroglyph



Tián pictogram
Image: Wang Hongyuan



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Tián pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (right side)	Vertical #1 (right side)	Yes
Vertical #2 (middle)	Vertical #2 (middle)	Yes
Vertical #3 (left side)	Vertical #3 (left side)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (top middle)	Horizontal #2 (top middle)	Yes
Horizontal #3 (bottom middle)	Horizontal #3 (bottom middle)	Yes
Horizontal #4 (bottom)	Horizontal #4 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Tián pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – vertical #1 & horizontal #1	Connection – vertical #1 & horizontal #1	Yes
Junction – vertical #1 & horizontal #2	Junction – vertical #1 & horizontal #2	Yes
None	Junction – vertical #1 & horizontal #3	No
Connection - vertical #1 & horizontal #4	Connection - vertical #1 & horizontal #4	Yes
Junction – vertical #2 & horizontal #1	Junction – vertical #2 & horizontal #1	Yes
Intersection – vertical #2 & horizontal #2	Intersection – vertical #2 & horizontal #2	Yes
Intersection vertical #2 & horizontal #3	Intersection vertical #2 & horizontal #3	Yes
Junction – vertical #2 & horizontal #4	None	No
Connection – vertical #3 & horizontal #1	Connection – vertical #3 & horizontal #1	Yes
Junction – vertical #3 & horizontal #2	Junction – vertical #3 & horizontal #2	Yes
Junction – vertical #3 & horizontal #3	Junction – vertical #3 & horizontal #3	Yes
Connection – vertical #3 & horizontal #4	Connection – vertical #3 & horizontal #4	Yes

Calculation of Jaccard's Index for the comparison of the Tián pictogram with the Grapevine Canyon petroglyph

Total number of shared features M11 = 17

Total number of features N = 19

For Index of Similarity calculation: M10 = 1; M01 = 1

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{17}{1 + 1 + 17} = \frac{17}{19} = 0.8947$$

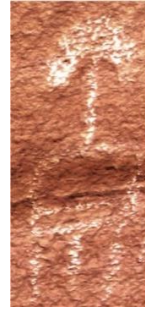
For N = 19 and J = 0.8947; P < 0.001

Chart 178

Chinese Jīng (capital city) Pictogram vs. Kachina Bridge Petroglyph



Jīng pictogram
Image: Baidu lexicon



Kachina Bridge glyph

Part 1. Comparison of line strokes

<u>Jīng pictogram line strokes</u>	<u>Kachina Bridge glyph line strokes</u>	<u>Shared Feature</u>
Diagonal down (top right)	Diagonal down (top right)	Yes
Diagonal up (top left)	Diagonal up (top left)	Yes
Horizontal	None	No
Vertical #1 (top right)	Vertical #1 (top)	Yes
Vertical #2 (top left)	None	No
Oval	Oval	Yes
Vertical #3 (bottom right)	Vertical #2 (bottom right)	Yes
Vertical #4 (bottom middle)	Vertical #3 (bottom middle)	Yes
Vertical #5 (bottom left)	Vertical #4 (bottom left)	Yes

Part 2. Comparison of line stroke touch relations

<u>Jīng pictogram line stroke relations</u>	<u>Kachina Bridge glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – diagonal down & diagonal up	Connection – diagonal down & diagonal up	Yes
Connection – diagonal down & horizontal	None	No
Connection – diagonal up & horizontal	None	No
Junction – vertical #1 & horizontal	Junction – vertical #1 & diagonals	Yes
Junction – vertical #2 & horizontal	None	No
Junction – vertical #1 & oval	Junction – vertical #1 & oval	Yes
Junction – vertical #2 & oval	None	No
Junction – vertical #3 & oval	Junction – vertical #2 & oval	Yes
Junction – vertical #4 & oval	Junction – vertical #3 & oval	Yes
Junction – vertical #5 & oval	Junction – vertical #4 & oval	Yes

Calculation of Jaccard's Index for the comparison of the Jīng pictogram with the Kachina Bridge petroglyph

Total number of shared features M11 = 13

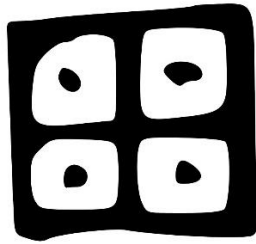
Total number of features N = 19

For Index of Similarity calculation: M10 = 6; M01 = 0

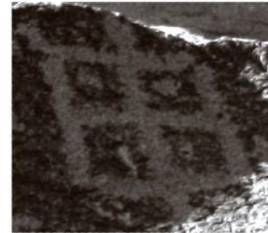
$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{13}{6 + 0 + 13} = \frac{13}{19} = 0.6842$$

For N = 19 and J = 0.6842; P < 0.01

Chart 179
Chinese Zhōu (Zhou dynasty) Pictogram vs. Orilla Verde Petroglyph



Zhōu pictogram
Image: Richard Sears



Orilla Verde glyph

Part 1. Comparison of line strokes

<u>Zhōu pictogram line strokes</u>	<u>Orilla Verde glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (right)	Vertical #1 (right)	Yes
Vertical #2 (center)	Vertical #2 (center)	Yes
Vertical #3 (left)	Vertical #3 (left)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (center)	Horizontal #2 (center)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes
Dot	Dot	Yes x 3
Dot	None	No

Part 2. Comparison of line stroke touch relations

<u>Zhōu pictogram line stroke relations</u>	<u>Orilla Verde glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – vertical #1 & horizontal #1	Junction – vertical #1 & horizontal #1	No
Junction – vertical #1 & horizontal #2	Junction – vertical #1 & horizontal #2	Yes
Connection – vertical #1 & horizontal #3	Connection – vertical #1 & horizontal #3	Yes
Junction – vertical #2 & horizontal #1	Intersection – vertical #2 & horizontal #1	No
Intersection – vertical #2 & horizontal #2	Intersection – vertical #2 & horizontal #2	Yes
Junction – vertical #2 & horizontal #3	Intersection – vertical #2 & horizontal #3	No
Connection – vertical #3 & horizontal #1	Connection – vertical #3 & horizontal #1	Yes
Junction – vertical #3 & horizontal #2	Junction – vertical #3 & horizontal #2	Yes
Connection – vertical #3 & horizontal #3	Connection – vertical #3 & horizontal #3	Yes
Placement – dot within open square	Placement – dot within open square	Yes x 3
Placement – dot within open square	None	No

Calculation of Jaccard's Index for the comparison of the Zhōu pictogram with the Orilla Verde petroglyph

Total number of shared features M11 = 18

Total number of features N = 23

For Index of Similarity calculation: M10 = 2; M01 = 3

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{18}{2 + 3 + 18} = \frac{18}{23} = 0.7826$$

For N = 23 and J = 0.7826; P < 0.001

Chart 180

Chinese Guǐ (10th Heavenly Stem) Pictogram vs. 5-Mile Draw Petroglyph



Guǐ pictogram
Image: Richard Sears



5-Mile Draw glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Guǐ pictogram line strokes</u>	<u>5-Mile Draw glyph line strokes</u>	<u>Shared Feature</u>
Diagonal up (centerline)	Diagonal up #1 (centerline)	Yes
Right curve #1 (centerline)	Right curve #1 (centerline)	Yes
Arc up (top right)	Vertical (top right)	No
Right curve #2 (top left)	Diagonal up #2 (top left)	No
Right curve #3 (bottom left)	Right curve #2 (bottom left)	Yes
Arc down (bottom)	Arc down (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Guǐ pictogram line stroke relations</u>	<u>5-Mile Draw glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection – diagonal up & right curve	Intersection – diagonal up #1 & right curve	Yes
Intersection – arc up & diagonal up	Intersection – vertical & diagonal up #1	Yes
Intersection – right curve #2 & right curve #1	Intersection – diagonal up #2 & right curve #1	Yes
Intersection – right curve #3 & diagonal up	Intersection – right curve #2 & diagonal up #1	Yes
Intersection – arc down & right curve #1	Intersection – arc down & right curve #1	Yes

Calculation of Jaccard's Index for the comparison of the Guǐ pictogram with the 5-Mile Draw petroglyph

Total number of shared features M11 = 9

Total number of features N = 11

For Index of Similarity calculation: M10 = 2; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{2 + 0 + 9} = \frac{9}{11} = 0.8182$$

For N = 11 and J = 0.8182; P < 0.01

Chart 181

Chinese Shǐ3 (Arrow) Pictogram vs. 5-Mile Draw Petroglyph



Shǐ pictogram
Image: Richard Sears



5-Mile Draw glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Shǐ pictogram line strokes</u>	<u>5-Mile Draw glyph line strokes</u>	<u>Shared Feature</u>
Oval #1 (right)	Oval (right)	Yes
Horizontal #1	Horizontal #1	Yes
Vertical	Vertical	Yes
Horizontal #2	Horizontal #2	Yes
Arc up	Diagonal down	No
Arc down	None	No

Part 2. Comparison of line stroke touch relations

<u>Shǐ pictogram line stroke relations</u>	<u>5-Mile Draw glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection – horizontal #1 & Horizontal #2	Intersection – horizontal #1 & horizontal #2	Yes
Junction – horizontal #1 & oval (right)	Junction – horizontal #1 & oval (right)	Yes
Junction – horizontal #1 & oval (left)	None	No
Junction – vertical & oval (top)	Junction – vertical & oval (top)	Yes
Junction – vertical & oval (bottom)	Junction – vertical & oval (bottom)	Yes
Connection – oval & horizontal #2	Connection – oval & horizontal #2	Yes
Connection – horizontal #2 & arc up	Connection – horizontal #2 & diagonal down	Yes
Connection – horizontal #2 & arc down	None	No
Intersection – arc up & arc down	None	No

Calculation of Jaccard's Index for the comparison of the Shǐ pictogram with the 5-Mile Draw petroglyph

Total number of shared features M11 = 10

Total number of features N = 15

For Index of Similarity calculation: M10 = 4; M01 = 1

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{10}{4 + 1 + 10} = \frac{10}{15} = 0.6667$$

For N = 15 and J = 0.6667; P = 0.01

Chart 182

Chinese Máo (Spear) Pictogram vs. Surprise Tank Petroglyph



Máo pictogram
Image: Wikipedia



Surprise Tank glyph

Part 1. Comparison of line strokes

<u>Máo pictogram line strokes</u>	<u>Surprise Tank glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Wavy line	Wavy line	Yes

Part 2. Comparison of line stroke touch relations

<u>Máo pictogram line stroke relations</u>	<u>Surprise Tank glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – wavy line & vertical (top)	Connection – wavy line & vertical (top)	No
Intersection – wavy line & vertical (top middle)	Intersection – wavy line & vertical (top middle)	Yes
Intersection – wavy line & vertical (bottom middle)	Intersection – wavy line & vertical (bottom middle)	Yes
Intersection – wavy line & vertical (bottom)	Intersection – wavy line & vertical (bottom)	Yes

Calculation of Jaccard's Index for the comparison of the Máo pictogram with the Surprise Tank petroglyph

Total number of shared features $M11 = 5$

Total number of features $N = 6$

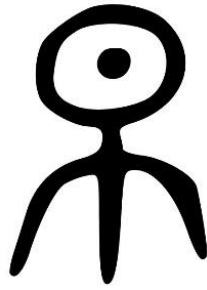
For Index of Similarity calculation: $M10 = 1;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{5}{1 + 0 + 5} = \frac{5}{6} = 0.8333$$

For $N = 6$ and $J = 0.8333;$ $P = 0.05$

Chart 183

Chinese Zǎo (early morning) Pictogram vs. Winslow Petroglyph



Zǎo pictogram
Image: Richard Sears



Winslow glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Zǎo pictogram line strokes</u>	<u>Winslow glyph line strokes</u>	<u>Shared Feature</u>
Circle	Circle	Yes
Vertical	Vertical	Yes
Arc up	Arc up	Yes
Dot	Dot	Yes

Part 2. Comparison of line stroke touch relations

<u>Zǎo pictogram line stroke relations</u>	<u>Winslow glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – circle & vertical	Junction – circle & vertical	Yes
Intersection – vertical & arc up	Junction – vertical & arc up	No
Placement – dot in circle center	Placement – dot in circle center	Yes

Calculation of Jaccard's Index for the comparison of the Zǎo pictogram with the Winslow petroglyph

Total number of shared features $M11 = 6$

Total number of features $N = 7$

For Index of Similarity calculation: $M10 = 1;$ $M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{6}{1 + 0 + 6} = \frac{6}{7} = 0.8571$$

For $N = 7$ and $J = 0.8571;$ $P = 0.01$

Chart 184
Chinese Yì (mow) Pictogram vs. Zuni Wash Petroglyph



Yì pictogram
 Image: Chinese Text Project



Zuni Wash glyph
 Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Yì pictogram line strokes</u>	<u>Zuni Wash glyph line strokes</u>	<u>Shared Feature</u>
Hook#1 (top right)	Hook#1 (top right)	Yes
Hook#2 (top left)	Hook#2 (top left)	Yes
Hook#3 (bottom right)	Hook#3 (bottom right)	Yes
Hook#4 (bottom left)	Hook#4 (bottom left)	Yes

Part 2. Comparison of line stroke touch relations

<u>Yì pictogram line stroke relations</u>	<u>Zuni Wash glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – hooks 1-4 at center	Connection – hooks 1-4 at center	Yes x 4

Calculation of Jaccard's Index for the comparison of the Yì pictogram with the Zuni Wash petroglyph

Total number of shared features M11 = 8

Total number of features N = 8

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{0 + 0 + 8} = \frac{8}{8} = 1.0000$$

For N = 8 and J = 1.0000; P = 0.001

Chart 185

Chinese Nián pictogram vs. Sears Point Petroglyph



Nián pictogram
Image: Li Feng



Sears Point glyph

Part 1. Comparison of line strokes

<u>Nián pictogram line strokes</u>	<u>Sears Point glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal (X5)	Horizontal (X5)	Yes x 5

Part 2. Comparison of line stroke touch relations

<u>Nián pictogram line stroke relations</u>	<u>Sears Point glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection at 90-degree angle	Intersection at 90-degree angle	Yes x 4
Intersection horizontal top & vertical	Intersection horizontal top & vertical	Yes

Calculation of Jaccard's Index for the comparison of the Nián pictogram with the Sears Point petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000

P < 0.001

Chart 186
Chinese Wū (shaman) Pictogram vs. Silver Creek, Arizona Glyph



Wū pictogram
Image: Richard Sears



Silver Creek glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Wū pictogram line strokes</u>	<u>Silver Creek glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center)	Vertical #1 (center)	Yes
Horizontal #1 (center)	Horizontal #1 (center)	Yes
Vertical #2 (right)	Vertical #2 (right)	Yes
Vertical #3 (left)	Vertical #3 (left)	Yes
Horizontal #2 (top)	Horizontal #2 (top)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Wū pictogram line stroke touch relations</u>	<u>Silver Creek glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – vertical #1 & horizontal #1	Intersection – vertical #1 & horizontal #1	Yes
Junction – vertical #1 & horizontal #2	Junction – vertical #1 & horizontal #2	Yes
Junction – vertical #1 & horizontal #3	Junction – vertical #1 & horizontal #2	Yes
Junction – horizontal #1 & vertical #2	Junction – horizontal #1 & vertical #2	Yes
Junction – horizontal #1 & vertical #3	Junction – horizontal #1 & vertical #3	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Wū pictogram with the Silver Creek petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.000$$

For N = 11 and J = 1.0000 P < 0.001

Chart 187

Chinese Wū (shaman) Pictogram vs. Inscription Point, Arizona Glyph



Wū pictogram
Image: Richard Sears



Inscription Point glyph
Photo: David R. Daniels

Part 1. Comparison of line strokes

<u>Wū pictogram line strokes</u>	<u>Inscription Point glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center)	Vertical #1 (center)	Yes
Horizontal #1 (center)	Horizontal #1 (center)	Yes
Vertical #2 (right)	Vertical #2 (right)	Yes
Vertical #3 (left)	Vertical #3 (left)	Yes
Horizontal #2 (top)	Horizontal #2 (top)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Wū pictogram line stroke touch relations</u>	<u>Inscription Point glyph line stroke touch relations</u>	<u>Shared Relation</u>
Intersection – vertical #1 & horizontal #1	Intersection – vertical #1 & horizontal #1	Yes
Junction – vertical #1 & horizontal #2	Junction – vertical #1 & horizontal #2	Yes
Junction – vertical #1 & horizontal #3	Junction – vertical #1 & horizontal #2	Yes
Junction – horizontal #1 & vertical #2	Junction – horizontal #1 & vertical #2	Yes
Junction – horizontal #1 & vertical #3	Junction – horizontal #1 & vertical #3	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Wū pictogram with the Inscription Point petroglyph

Total number of shared features M11 = 11

Total number of features N = 11

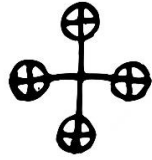
For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.000$$

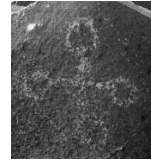
For N = 11 and J = 1.0000 P < 0.001

Chart 188

Chinese Léi (thunder) Pictogram vs. Three Rivers Glyph



Léi pictogram
Image: Frank Chalfant



Three Rivers glyph

Part 1. Comparison of line strokes

<u>Léi pictogram line strokes</u>	<u>Three Rivers glyph line strokes</u>	<u>Shared Feature</u>
Vertical	Vertical	Yes
Horizontal	Horizontal	Yes
Circle #1 (top)	Circle #1 (top)	Yes
Circle #2 (bottom)	Circle #2 (bottom)	Yes
Circle #3 (right)	Circle #3 (right)	Yes
Circle #4 (left)	Circle #4 (left)	Yes
+ within circle (#1-4)	None	No X 4

Part 2. Comparison of line stroke touch relations

<u>Léi pictogram line stroke relations</u>	<u>Three Rivers line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical & horizontal	Intersection - vertical & horizontal	Yes
Connection - circle #1 & vertical (top)	Connection - circle #1 & vertical (top)	Yes
Connection - circle #2 & vertical (bottom)	Connection - circle #2 & vertical (bottom)	Yes
Connection - circle #3 & horizontal	Connection - circle #3 & horizontal	Yes
Connection - circle #4 & horizontal	Connection - circle #4 & horizontal	Yes
Placement - + within circle #1-4	None	No X 4

Calculation of Jaccard's Index for the comparison of the Chinese Léi pictogram with the Three Rivers glyph

Total number of shared features $M_{11} = 11$

Total number of features $N = 19$

For Index of Similarity calculation: $M_{10} = 8; \quad M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{11}{8 + 0 + 11} = \frac{11}{19} = 0.5789$$

For $N = 19$ and $J = 0.5789$ $P = 0.05$

Chart 189

Chinese Chǐ (teeth) Pictogram vs. Three Rivers Glyph



Chǐ pictogram
Image: Richard Sears



Three Rivers glyph

Part 1. Comparison of line strokes

<u>Chǐ pictogram line strokes</u>	<u>Three Rivers glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (exterior left)	Vertical #1 (exterior left)	Yes
Vertical #2 (interior left top)	Vertical #2 (interior left top)	Yes
Vertical #3 (interior left center top)	Vertical #3 (interior left center top)	Yes
Vertical #4 (interior right center top)	Vertical #4 (interior right center top)	Yes
Vertical #5 (interior right top)	Vertical #5 (interior right top)	Yes
Vertical #6 (exterior right)	Vertical #6 (exterior right)	Yes
Vertical #7 (interior left bottom)	Vertical #7 (interior left bottom)	Yes
Vertical #8 (interior left center bottom)	Vertical #8 (interior left center bottom)	Yes
Vertical #9 (interior right center bottom)	Vertical #9 (interior right center bottom)	Yes
Vertical #10 (interior right bottom)	Vertical #10 (interior right bottom)	Yes
Horizontal #1 (top left corner)	Horizontal #1 (top left corner)	Yes
Horizontal #2 (interior top left)	Horizontal #2 (interior top left)	Yes
Horizontal #3 (exterior middle top)	Horizontal #3 (exterior middle top)	Yes
Horizontal #4 (interior top right)	Horizontal #4 (interior top right)	Yes
Horizontal #5 (top right corner)	Horizontal #5 (top right corner)	Yes
Horizontal #6 (bottom left corner)	Horizontal #6 (bottom left corner)	Yes
Horizontal #7 (interior bottom left)	Horizontal #7 (interior bottom left)	Yes
Horizontal #8 (exterior middle bottom)	Horizontal #8 (exterior middle bottom)	Yes
Horizontal #9 (interior bottom right)	Horizontal #9 (interior bottom right)	Yes
Horizontal #10 (bottom right corner)	Horizontal #10 (bottom right corner)	Yes
Horizontal #11 (exterior top left)	None	No
Horizontal #12 (exterior top right)	None	No
Horizontal #13 (exterior bottom left)	None	No
Horizontal #14 (exterior bottom right)	None	No

Part 2. Comparison of line stroke touch relations

<u>Chinese Chǐ pictogram line stroke relations</u>	<u>Three Rivers glyph line stroke relations</u>	<u>Shared Relation</u>
Connection - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	Yes
Connection - horizontal #1 & vertical #2	Connection - horizontal #1 & vertical #2	Yes
Connection - vertical #2 & horizontal #2	Connection - vertical #2 & horizontal #2	Yes
Connection - horizontal #2 & vertical #3	Connection - horizontal #2 & vertical #3	Yes

- Chart continued on the following page -

Chǐ pictogram line stroke relations

Connection - vertical #3 & horizontal #3
 Connection - horizontal #3 & vertical #4
 Connection - vertical #4 & horizontal #4
 Connection - horizontal #4 & vertical #5
 Connection - vertical #5 & horizontal #5
 Connection - horizontal #5 & vertical #6
 Connection - vertical #6 and horizontal #10
 Connection - horizontal #10 & vertical #10
 Connection - vertical #10 & horizontal #9
 Connection - horizontal #9 & vertical #9
 Connection - vertical #9 & horizontal #8
 Connection - horizontal #8 & vertical #8
 Connection - vertical #8 & horizontal #7
 Connection - horizontal #7 & vertical #7
 Connection - vertical #7 & horizontal #6
 Connection - horizontal #6 & vertical #1
 Connection - vertical #2 & horizontal #11
 Connection - horizontal #11 & vertical #3
 Connection - vertical #4 & horizontal #12
 Connection - horizontal #12 & vertical #5
 Connection - vertical #7 & horizontal #13
 Connection - horizontal #13 & vertical #8
 Connection - vertical #9 & horizontal #14
 Connection - horizontal #14 & vertical #10

Three Rivers glyph line stroke relations

Connection - vertical #3 & horizontal #3
 Connection - horizontal #3 & vertical #4
 Connection - vertical #4 & horizontal #4
 Connection - horizontal #4 & vertical #5
 Connection - vertical #5 & horizontal #5
 Connection - horizontal #5 & vertical #6
 Connection - vertical #6 & horizontal #10
 Connection - horizontal #10 & vertical #10
 Connection - vertical #10 & horizontal #9
 Connection - horizontal #9 & vertical #9
 Connection - vertical #9 & horizontal #8
 Connection - horizontal #9 & vertical #8
 Connection - vertical #8 & horizontal #7
 Connection - horizontal #7 & vertical #7
 Connection - vertical #7 & horizontal #6
 Connection - horizontal #6 & vertical #1
 None
 None
 None
 None
 None
 None
 None
 None
 None
 None
 None

Shared Relation

Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 Yes
 No
 No
 No
 No
 No
 No
 No
 No
 No
 No

Calculation of Jaccard's Index for the comparison of the Chǐ pictogram with the Three Rivers petroglyph

Total number of shared features M11 = 40

Total number of features N = 52

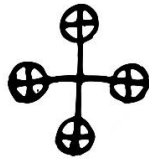
For Index of Similarity calculation: M10 = 12; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{40}{12 + 0 + 40} = \frac{40}{52} = 0.7692$$

For N = 52 and J = 0.7692; P < 0.001

Chart 190

Chinese Léi (thunder) Pictogram vs. Painted Rock Glyph



Léi pictogram
Image: Frank Chalfant



Painted Rock glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

Léi pictogram line strokes

Vertical
Horizontal
Circle #1 (top)
Circle #2 (bottom)
Circle #3 (right)
Circle #4 (left)
+ within circle (#1-4)

Painted Rock glyph line strokes

Vertical
Horizontal
Circle #1 (top)
Circle #2 (bottom)
Circle #3 (right)
Circle #4 (left)
None

Shared Feature

Yes
Yes
Yes
Yes
Yes
Yes
No X 4

Part 2. Comparison of line stroke touch relations

Léi pictogram line stroke relations

Intersection - vertical & horizontal
Connection - circle #1 & vertical (top)
Connection - circle #2 & vertical (bottom)
Connection - circle #3 & horizontal
Connection - circle #4 & horizontal
Placement - + within circle #1-4

Painted Rock line stroke relations

Intersection - vertical & horizontal
Connection - circle #1 & vertical (top)
Connection - circle #2 & vertical (bottom)
Connection - circle #3 & horizontal
Connection - circle #4 & horizontal
None

Shared Relation

Yes
Yes
Yes
Yes
Yes
No X 4

Calculation of Jaccard's Index for the comparison of the Chinese Léi pictogram with the Painted Rock glyph

Total number of shared features $M_{11} = 11$

Total number of features $N = 19$

For Index of Similarity calculation: $M_{10} = 8$; $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{11}{8 + 0 + 11} = \frac{11}{19} = 0.5789$$

For $N = 19$ and $J = 0.5789$ $P = 0.05$

Chart 191

Chinese Qiě (altar) Pictogram vs. Painted Rock Glyph



Qiě pictogram
Image: Richard Sears



Painted Rock glyph

Part 1. Comparison of line strokes

<u>Qiě pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared Feature</u>
Diagonal up	Diagonal Up	Yes
Diagonal down	Diagonal down	Yes
Horizontal #1 (middle)	Horizontal #1 (middle)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Qiě pictogram line stroke relations</u>	<u>Painted Rock line stroke relations</u>	<u>Shared Relation</u>
Connection – diagonal up & diagonal down	Connection – diagonal up & diagonal down	Yes
Connection – diagonal down & horizontal #2	Connection – diagonal down & horizontal #2	Yes
Connection – horizontal #2 & diagonal up	Connection – horizontal #2 & diagonal up	Yes
Junction – horizontal #1 & diagonal up	Junction – horizontal #1 & diagonal up	Yes
Junction – horizontal #1 & diagonal down	Junction – horizontal #1 & diagonal down	Yes

Calculation of Jaccard's Index for the comparison of the Chinese Qiě pictogram with the Painted Rock glyph

Total number of shared features $M11 = 9$

Total number of features $N = 9$

For Index of Similarity calculation: $M10 = 0; M01 = 0$

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{9}{0 + 0 + 9} = \frac{9}{9} = 1.0000$$

For $N = 9$ and $J = 1.0000$ $P < 0.001$

Chart 192

Chinese Zhōng (middle) Pictogram vs. Painted Rock Glyph



Zhōng pictogram
Source: L. Wieger



Painted Rock glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Zhōng pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (center line)	Vertical #1 (center line)	Yes
Vertical #2 (left)	Vertical #2 (left)	Yes
Vertical #3 (right)	Vertical #3 (right)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Zhōng pictogram line stroke relations</u>	<u>Painted Rock glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection - vertical #1 & horizontal #1	Intersection - vertical #1 & horizontal #1	Yes
Intersection - vertical #1 & horizontal #2	Intersection - vertical #1 & horizontal #2	Yes
Connection - vertical #2 & horizontal #1 (left)	Connection - vertical #2 & horizontal #1 (left)	Yes
Connection - vertical #2 & horizontal #2 (left)	Connection - vertical #2 & horizontal #2 (left)	Yes
Connection - vertical #3 & horizontal #1 (right)	Connection - vertical #3 & horizontal #1 (right)	Yes
Connection - vertical #3 & horizontal #2 (right)	Connection - vertical #3 & horizontal #2 (right)	Yes

Calculation of Jaccard's Index for the Chinese Zhōng pictogram with the Painted Rock glyph

Total number of shared features $M_{11} = 11$

Total number of features $N = 11$

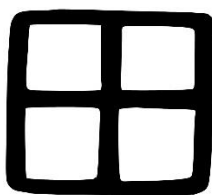
For Index of Similarity calculation: $M_{10} = 0; \quad M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{11}{1 + 0 + 10} = \frac{11}{11} = 1.0000$$

For $N = 11$ and $J = 1.0000$; $P < 0.001$

Chart 193

Chinese Tián (field) Pictogram vs. Painted Rock Glyph



Tián pictogram
Image: Richard Sears



Painted Rock glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Tián pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared Feature</u>
Vertical (central)	Vertical (central)	Yes
Horizontal (central)	Horizontal (central)	Yes
Square (outline)	Square (outline)	Yes

Part 2. Comparison of line-stroke touch relations

<u>Tián pictogram line stroke relations</u>	<u>Painted Rock glyph line stroke relations</u>	<u>Shared Relation</u>
Intersection – vertical & horizontal	Intersection – vertical & horizontal	Yes
Junction – vertical & square (top)	Junction – vertical & square (top)	Yes
Junction – vertical & square (bottom)	Junction – vertical & square (bottom)	Yes
Junction – horizontal & square (right)	Junction – horizontal & square (right)	Yes
Junction – horizontal & square (left)	Junction – horizontal & square (left)	Yes

Calculation of Jaccard's Index for the Chinese Tián pictogram with the Painted Rock glyph

Total number of shared features M11 = 8

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{8}{0 + 0 + 8} = \frac{8}{8} = 1.0000$$

For N = 8 and J = 1.0000; P = 0.001

Chart 194

Chinese Yǒng (bell) Pictogram vs. Painted Rock Glyph



Yǒng pictogram
Image: Richard Sears



Painted Rock glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Yǒng pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared Feature</u>
Ring (top)	Ring (top)	Yes
Arc down (top lower figure)	Arc down (top lower figure)	Yes
Vertical #1 (right side)	Vertical #1 (right side)	Yes
Vertical #2 (middle)	Vertical #2 (middle)	Yes
Vertical #3 (left side)	Vertical #3 (left side)	Yes
None	Vertical #4 (right middle)	No
Horizontal #1 (middle)	Horizontal #1 (middle)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Yǒng pictogram line stroke relations</u>	<u>Painted Rock glyph line stroke relations</u>	<u>Shared Relation</u>
Junction (ring & arc down)	None	No
Connection (arc down & vertical #1)	Connection (arc down & vertical #1)	Yes
Connection (arc down & vertical #3)	Connection (arc down & vertical #3)	Yes
Junction (arc down & vertical #2)	Junction (arc down & vertical #2)	Yes
Junction (horizontal #1 & vertical #1)	Junction (horizontal #1 & vertical #1)	Yes
Junction (horizontal #1 & vertical #3)	Junction (horizontal #1 & vertical #3)	Yes
Intersection (horizontal #1 & vertical #2)	Intersection (horizontal #1 & vertical #2)	No
Junction (horizontal #2 & vertical #1)	Connection (horizontal #2 & vertical #1)	No
Junction (horizontal #2 & vertical #3)	Junction (horizontal #2 & vertical #3)	Yes
Intersection (horizontal #2 & vertical #2)	Intersection (horizontal #2 & vertical #2)	No
None	Junction (vertical #4 & horizontal #1)	No
None	Junction (vertical #4 & horizontal #2)	No

Calculation of Jaccard's Index for the Chinese Yǒng pictogram with the Painted Rock glyph

Total number of shared features $M_{11} = 13$

Total number of features $N = 12$

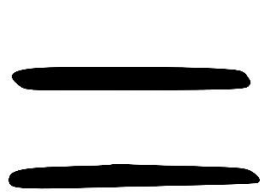
For Index of Similarity calculation: $M_{10} = 4$; $M_{01} = 3$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{13}{4 + 3 + 13} = \frac{13}{20} = 0.6500$$

For $N = 20$ and $J = 0.6500$; $P = 0.01$

Chart 195

Chinese Èr & Jiū (Hù4 = mutual) Pictograms vs. Painted Rock Glyph



Èr pictogram
Image: Richard Sears



Jiū pictogram
Image: Wikipedia



Painted Rock glyph
Photo: Richard Gonsalves

Part 1a. Comparison of Èr line strokes

<u>Èr pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared Feature</u>
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 1b. Comparison of Jiū line strokes

<u>Jiū pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared Feature</u>
Vertical #1 (right)	Vertical #1 (right)	Yes
Vertical #2 (left)	Vertical #2 (left)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (middle top)	Horizontal #2 (middle top)	Yes
Horizontal #3 (middle bottom)	Horizontal #3 (middle bottom)	Yes
Horizontal #4 (bottom)	Horizontal #4 (bottom)	Yes

Part 2a. Comparison of Èr line stroke touch relations

<u>Èr pictogram line stroke relations</u>	<u>Painted Rock glyph line stroke relations</u>	<u>Shared Relation</u>
Placement – horizontal #1 above horizontal #2	Placement – horizontal #1 above horizontal #2	Yes
Placement – Jiū between lines of Èr	Placement – Jiū between lines of Èr	

Part 2b. Comparison of Jiū line stroke touch relations

<u>Jiū pictogram line stroke relations</u>	<u>Painted Rock glyph line stroke relations</u>	<u>Shared Relation</u>
Connection – vertical #1 & horizontal #1	Connection – vertical #1 & horizontal #1	Yes
Connection – vertical #1 & horizontal #3	Connection – vertical #1 & horizontal #3	Yes
Connection – vertical #2 & horizontal #2	Connection – vertical #2 & horizontal #2	Yes
Connection – vertical #2 & horizontal #4	Connection – vertical #2 & horizontal #4	Yes
Placement – interlocking hooks	Placement – interlocking hooks	Yes

Calculation of Jaccard's Index for the Chinese Jiū pictogram with the Painted Rock glyph

Total number of shared features M11 = 11

Total number of features N = 11

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 0 + 11} = \frac{11}{11} = 1.0000$$

For N = 11 and J = 1.0000; P < 0.001

Chart 196

Chinese Yǒng (bell) Pictogram vs. Painted Rock Glyph



Yǒng pictogram
Image: Richard Sears



Painted Rock glyph
Photo: Richard Gonsalves

Part 1. Comparison of Line strokes

<u>Yǒng pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared Feature</u>
Ring (top)	Ring (top)	Yes
Vertical #1 (right)	Vertical #1 (right)	Yes
Vertical #2 (center)	Vertical #2 (center)	Yes
Vertical #3 (left)	Vertical #3 (left)	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes
Vertical #4 (ring top right)	None	No
Vertical #5 (ring top left)	None	No

Part 2. Comparison of Line-stroke Touch Relations

<u>Yǒng pictogram line stroke relations</u>	<u>Painted Rock glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - ring & vertical #2	Junction - ring and vertical #2	Yes
Junction - vertical #1 & horizontal #1	Connection - vertical #1 & horizontal #1	No
Intersection - vertical #2 & horizontal #1	Intersection - vertical #2 & horizontal #1	Yes
Junction - vertical #3 & horizontal #1	Connection - vertical #3 & horizontal #1	No
Junction - vertical #1 & horizontal #2	Junction - vertical #1 & horizontal #2	Yes
Intersection - vertical #2 & horizontal #2	Intersection - vertical #2 & horizontal #2	Yes
Junction - vertical #3 & horizontal #2	Junction - vertical #3 & horizontal #2	Yes
Junction - vertical #4 & ring	None	No
Junction - vertical #5 & ring	None	No

Calculation of Jaccard's Index for the Chinese Yǒng pictogram with the Painted Rock glyph

Total number of shared features M11 = 11

Total number of features N = 17

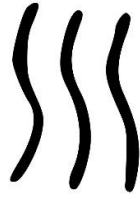
For Index of Similarity calculation: M10 = 4; M01 = 2

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{4 + 2 + 11} = \frac{11}{17} = 0.6471$$

For N = 17 and J = 0.6471; P = 0.01

Chart 197

Chinese Shuǐ (water) Pictogram vs. Painted Rock Glyph



Shuǐ pictogram
Image: Richard Sears



Painted Rock glyph
Photo: Richard Gonsalves

Part 1. Comparison of line strokes

<u>Shuǐ pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared feature</u>
None	Diagonal set #1 (left - alternating down-up-down)	No x 3
Diagonal set #1 (alternating up-down-up)	Diagonal set #2 (alternating up-down-up)	Yes x 3
Diagonal set #2 (alternating up-down-up)	Diagonal set #3 (alternating up-down-up)	Yes x 3
Diagonal set #3 (alternating up-down-up)	Diagonal set #4 (right - alternating up-down-up)	Yes x 3

Part 2. Comparison of line stroke touch relations

<u>Shuǐ pictogram line stroke relations</u>	<u>Painted Rock glyph line stroke relations</u>	<u>Shared Relation</u>
None	Placement – diagonal set #1 in phase with diagonal set #2	No
Placement - diagonal set #1 in phase with diagonal set #2	Placement - diagonal set #2 in phase with diagonal set #3	Yes
Placement - diagonal set #2 in phase with diagonal set #3	Placement - diagonal set #3 in phase with diagonal set #4	Yes

Calculation of Jaccard's Index for the Chinese Yǒng pictogram with the Painted Rock glyph

Total number of shared features M11 = 11

Total number of features N = 15

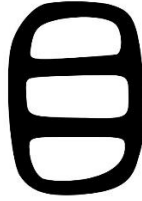
For Index of Similarity calculation: M10 = 0; M01 = 4

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{11}{0 + 4 + 11} = \frac{11}{15} = 0.7333$$

For N = 15 and J = 0.7333; P < 0.01

Chart 198

Chinese Mù (eye) Pictogram vs. Chidago Canyon Glyph



Mù pictogram
Image: Richard Sears



Chidago Canyon glyph

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes</u>	<u>Chidago Canyon glyph line strokes</u>	<u>Shared feature</u>
Oval	Oval	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Chidago Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - horizontal #1 and oval (right)	Junction - horizontal #1 & oval (right)	Yes
Junction - horizontal #1 & oval (left)	Junction - horizontal #1 & oval (left)	Yes
Junction - horizontal #2 & oval (right)	Junction - horizontal #2 & oval (right)	Yes
Junction - horizontal #2 & oval (left)	Junction - horizontal #2 & oval (left)	Yes

Calculation of Jaccard's Index for the Chinese Mù pictogram with the Chidago Canyon glyph

Total number of shared features M11 = 7

Total number of features N = 7

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{0 + 0 + 7} = \frac{7}{7} = 1.0000$$

For N = 7 and J = 1.0000; P = 0.001

Chart 199

Chinese Ěr (ear) Pictogram vs. Painted Rock Glyph



Ěr pictogram
Image: Richard Sears



Painted Rock glyph

Part 1. Comparison of line strokes

<u>Ěr pictogram line strokes</u>	<u>Painted Rock glyph line strokes</u>	<u>Shared feature</u>
Oval	Oval	Yes
Horizontal (middle)	Horizontal (middle)	Yes
Curve-down right (top)	Curve-down right (top)	Yes
Diagonal up (lower left)	Arc up (lower left)	No

Part 2. Comparison of line stroke touch relations

<u>Ěr pictogram line stroke relations</u>	<u>Painted Rock glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – curve-down right & oval	Junction – curve-down right & oval	Yes
Junction – horizontal & oval (right)	Junction – horizontal & oval (right)	Yes
Junction – horizontal & oval (left)	Junction – horizontal & oval (left)	Yes
Junction – diagonal up & oval	Junction – arc up & oval	Yes

Calculation of Jaccard's Index for the Chinese Ěr pictogram with the Painted Rock glyph

Total number of shared features M11 = 7

Total number of features N = 8

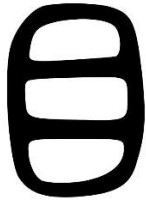
For Index of Similarity calculation: M10 = 1; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{1 + 0 + 7} = \frac{7}{8} = 0.8750$$

For N = 8 and J = 0.8750; P = 0.01

Chart 200

Chinese Mù (eye) Pictogram vs. Grapevine Canyon Glyph



Mù pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared feature</u>
Oval	Oval	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction - horizontal #1 and oval (right)	Junction - horizontal #1 & oval (right)	Yes
Junction - horizontal #1 & oval (left)	Junction - horizontal #1 & oval (left)	Yes
Junction - horizontal #2 & oval (right)	Junction - horizontal #2 & oval (right)	Yes
Junction - horizontal #2 & oval (left)	Junction - horizontal #2 & oval (left)	Yes

Calculation of Jaccard's Index for the Chinese Mù pictogram with the Grapevine Canyon glyph

Total number of shared features $M_{11} = 7$

Total number of features $N = 7$

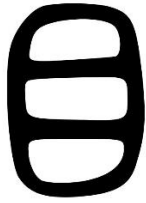
For Index of Similarity calculation: $M_{10} = 0;$ $M_{01} = 0$

$$\text{Jaccard's Index } (J) = \frac{M_{11}}{M_{10} + M_{01} + M_{11}} = \frac{7}{0 + 0 + 7} = \frac{7}{7} = 1.0000$$

For $N = 7$ and $J = 1.0000$; $P = 0.001$

Chart 201

Chinese Mù (eye) Pictogram vs. Grapevine Canyon Glyph



Mù pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Mù pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared feature</u>
Oval	Oval	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (bottom)	Horizontal #2 (bottom)	Yes

Part 2. Comparison of line stroke touch relations

<u>Mù pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – horizontal #1 and oval (right)	Junction - horizontal #1 & oval (right)	Yes
Junction - horizontal #1 & oval (left)	Junction - horizontal #1 & oval (left)	Yes
Junction - horizontal #2 & oval (right)	Junction - horizontal #2 & oval (right)	Yes
Junction - horizontal #2 & oval (left)	Junction - horizontal #2 & oval (left)	Yes

Calculation of Jaccard's Index for the Chinese Mù pictogram with the Grapevine Canyon glyph

Total number of shared features M11 = 7

Total number of features N = 7

For Index of Similarity calculation: M10 = 0; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10 + M01 + M11} = \frac{7}{0 + 0 + 7} = \frac{7}{7} = 1.0000$$

For N = 7 and J = 1.0000; P = 0.001

Chart 202

Chinese Huáng (emperor) Pictogram vs. Grapevine Canyon Glyph



Huáng pictogram
Image: Richard Sears



Grapevine Canyon glyph

Part 1. Comparison of line strokes

<u>Huáng pictogram line strokes</u>	<u>Grapevine Canyon glyph line strokes</u>	<u>Shared feature</u>
Oval	Oval	Yes
Vertical #1	Vertical	Yes
Horizontal #1 (top)	Horizontal #1 (top)	Yes
Horizontal #2 (middle)	Horizontal #2 (middle)	Yes
Horizontal #3 (bottom)	Horizontal #3 (bottom)	Yes
Vertical #2	Wavy line #1	No
Vertical #3	Wavy line #2	No
Vertical #4	Wavy line #3	No
Dot	None	No

Part 2. Comparison of line stroke touch relations

<u>Huáng pictogram line stroke relations</u>	<u>Grapevine Canyon glyph line stroke relations</u>	<u>Shared Relation</u>
Junction – oval & vertical #1	Junction – oval & vertical	Yes
Intersection – vertical #1 & horizontal #1	Intersection – vertical & horizontal #1	Yes
Intersection – vertical #1 & horizontal #2	Intersection – vertical & horizontal #2	Yes
Intersection – vertical #1 & horizontal #3	Intersection – vertical & horizontal #3	Yes
Junction – oval & vertical #2	Junction – oval & wavy line #1	Yes
Junction – oval & vertical #3	Junction – oval & wavy line #2	Yes
Junction – oval & vertical #4	Junction – oval & wavy line #3	Yes
Placement – dot within oval	None	No

Calculation of Jaccard's Index for the Chinese Huáng pictogram with the Grapevine Canyon glyph

Total number of shared features M11 = 12

Total number of features N = 17

For Index of Similarity calculation: M10 = 5; M01 = 0

$$\text{Jaccard's Index } (J) = \frac{M11}{M10+M01+M11} = \frac{12}{5+0+12} = \frac{12}{17} = 0.7059$$

For N = 17 and J = 0.7059; P < 0.01