Cognitive Jigs: Tools of Understanding

THE FUNCTION OF JIGS

A jig enables the user to accurately replicate something.

Essential to builders of all kinds, jigs are used whenever something has to be produced again and again. In a sense, they are the beginning of automation.

Other names for jigs are stencils, patterns, templates, overlays, boilerplates, and guides. Jigs can be conceptual as well as physical. A cognitive jig we are all familiar with is the analogy, which is essentially a comparison.
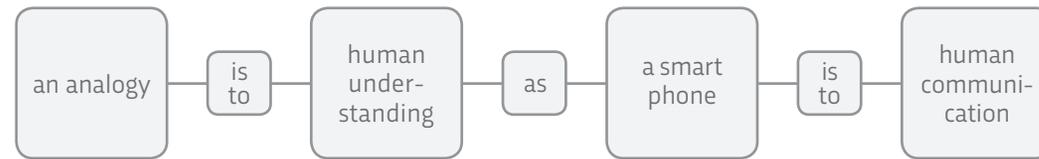
ANALOGIES

Endemic to human languages, analogies, similies, and metaphors are conceptual tools ingrained in our thinking.

Like iPhones,they are a technology—to increase our ability to communicate and to understand.

The previous sentence is a simile, one your brain undoubtedly processed quickly. Here's the simile diagrammed in analogy form:

an analogy — is to — human under-standing — as — a smart phone — is to — human communi-cation

Analogies are cognitive jigs; a cognitive technology that utilizes a common structure. The genius of analogies is that they provide a mental model of a common way we understand a new thing by comparison to a known thing.

Analogies are "content agnostic;" it makes no difference what the content of the analogy is, the underlying structure of the analogy remains the same. Likewise, cognitive jigs can be used across any topic, domain, or discipline.

The nature of the relationships in an analogy remains the same for all analogies (namely, **A** *is to* **B** *as* **C** *is to* **D**). For example, the analogies *doctor is to hospital as lawyer is to courtroom* and *son is to dad as daughter is to mom* share the same cognitive structure.

COGNITIVE JIGS

Cognitive Jigs are diagrammatic representations of some of the most common cognitive processes.

One of the simplest cognitive jigs is the relationship barbell. A "barbell" gets its name for obvious reasons. The basic structure—two ideas or things and the relationship between them—looks like a weightlifting barbell. Like all cognitive jigs, it is content agnostic, so it can be used and reused for any information or topic.

boy — relationship — dog

1. treatment
2. student
3. empathy

1. outcome
2. teacher
3. compassion
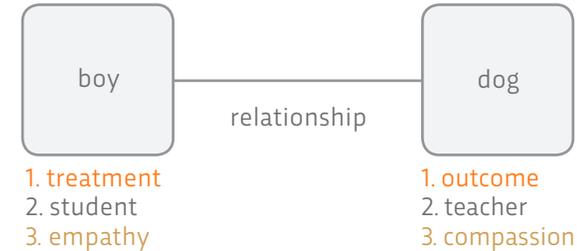
ADDING COMPLEXITY TO BARBELL JIGS

We can increase our depth of understanding by defining and adding various elements of cognitive jigs. In the diagram below we've defined the relationship between two things.

stone — splash — water

With the addition of directional lines and clearly defined relationships we can diagram a feedback loop that explicitly explains the continual updating of a mental model through real-world feedback. This feedback cycle represents the learning process.

approximates

mental model ⟶ real world

provides feedback on
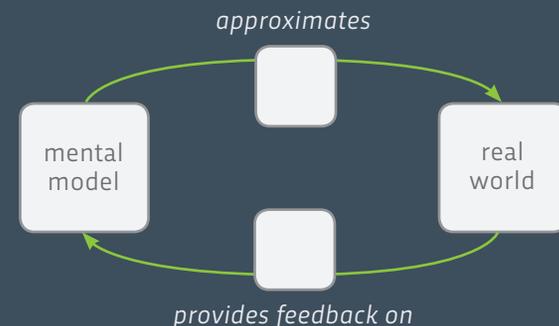
FOR MORE ON COGNITIVE JIGS

The promise that cognitive jigs holds is limited only by the imaginations of the people that utilize them and the capacity of mapping software.

As with the four cognitive building blocks DSRP, we often employ cognitive jigs unconsciously. But it is their identification and conscious/conscientious/purposeful application that bring the greatest cognitive gains.

(1) See page two for more cognitive jigs.
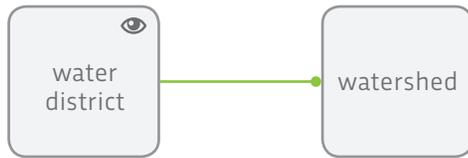
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2 See page one for an introduction to cognitive jigs.
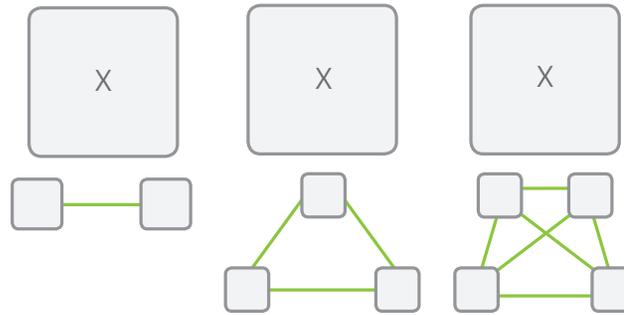
PERSPECTIVE CIRCLES (P-CIRCLES)

Perspectives are comprised of a point (here, watershed) and a view (here, water district).

Changing the point or the view changes the perspective. Most of our thinking errors come from thinking that the point is the same as the perspective when it's not.

water district —— watershed

Perspective circles combine a view with multiple points, enabling us to see things from multiple points simultaneously.

Here is a P-circle with three points on a single view. The same P-circle structure can be used across 3 wide-ranging examples which are distinguished by the color of their text (1, 2, and 3). For example, in the **#1 orange** example **DROUGHT** is seen from the perspective of **farming industry**, a **water district**, and a **conservationist**.

1. DROUGHT
2. REACTION TO BEING FILMED
3. MARY'S CAR

1. farming industry
2. professional actor
3. Mary

1. water district
2. politician
3. Mary's son

1. conservationist
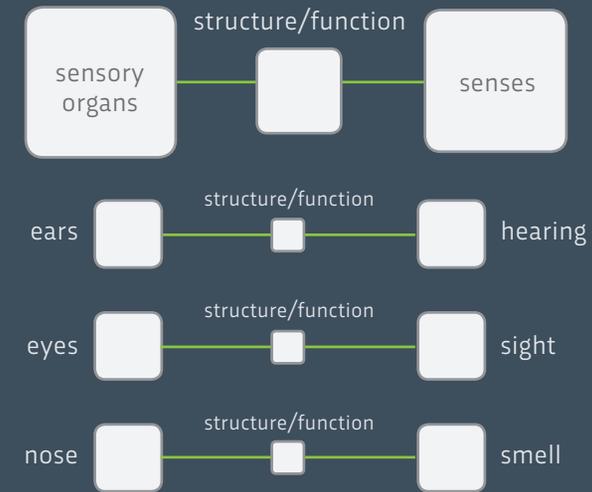2. introvert
3. Mary's mechanic

PART PARTIES (RELATIONSHIPS & SYSTEMS)

Part-parties break down things into parts and relate the parts. Here are part-parties with different numbers of parts.

X   X   X

Below is a part-party with relationships and perspectives identified for three different ecologies. **#1 orange** is an ecological system in Yellowstone National Park, **#2 white** is a political ecology at the United Nations, and **#3 yellow** is a word ecology of similar terms.

1. NATURAL ECOLOGY
2. POLITICAL ECOLOGY
3. WORD ECOLOGY

1. elk
2. USA
3. information

1. vegetation
2. Iran
3. subject matter

predator/prey
allies
synonyms

eats
tension
organized into

riparian zone
tension
analogous

1. wolf
2. UK
3. content

1. rivers
2. Iraq
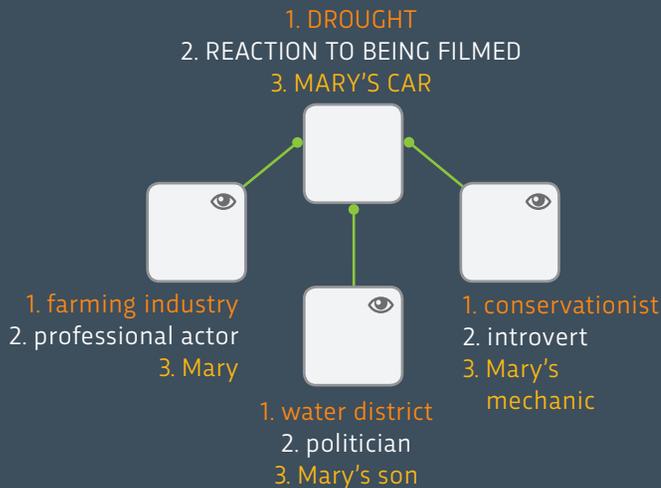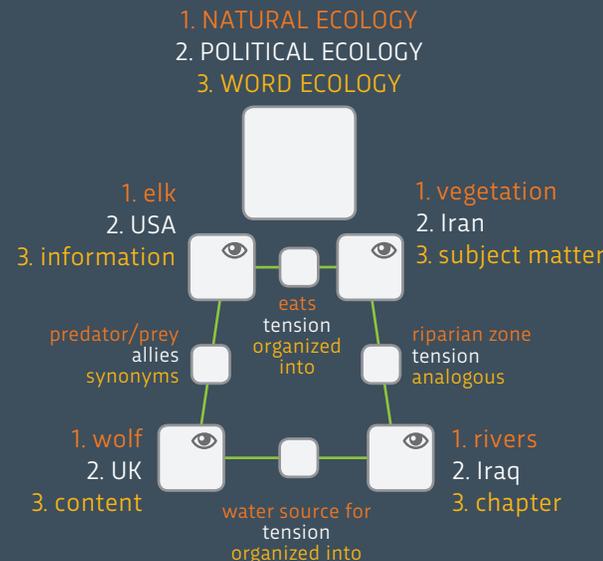3. chapter

water source for
tension
organized into

RELATIONSHIP-CHANNELS (R-CHANNELS)

This jig opens up a channel between two systems made up of parts so that we can relate not merely two things, but all of their parts. For example, we might relate the parts of a specific medical treatment with the parts of its outcomes.

sensory organs — structure/function — senses

ears — structure/function — hearing

eyes — structure/function — sight

nose — structure/function — smell

FOR MORE ON COGNITIVE JIGS see chapter five of Systems Thinking Made Simple: New Hope for Solving Wicked Problems.

Making complex concepts understandable has been a challenge to communicators for millennia. MetaMap software is a groundbreaking platform that allows users to present ideas by showing the basic structure of the thinking that has generated the ideas. Explore MetaMap at www.metamap.me/signup

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