# Memory systems overview

## DTM profile

The classification of a memory system can be made in three broad categories:

* the data type that anchors the memory image,
* the traversal style, and
* the maturity of the memory system.

## Data type anchor

Each type of memory system builds a stored memory from many data types and one is more often used to access the memory or trigger the memory as it is recalled. In the system, this is the anchor that all memories have in common as a data type. The anchor is then used to associate to another anchor for the traversal method.

## Traversals

Traversal is a method by which you can make sure that all images in a related group will be recollected in order as they were stored. It is an ordered path from one memory image to another.

There are three types of traversals:

* no traversal (each memory image is independent)
* narrative traversal (each memory image depends on the previous memory image)
* rule traversal (each memory image is ordered by a memory image component rule)

If there is **no ordering** of memory images, then each memory image would be retrieved independently from any other memory image much like a dictionary is used to look up word definitions. Even though it is ordered, the word that follows is neither useful or in any way associated with the previous word and no one would be interested in knowing all the words that start with a certain letter (at least someone disinterested in pushing the limits of a mnemonic system).

The **narrative traversal** is a way to connect one memory image to the next by creating some imaginative logic that associates the two commonly found in literature and performing arts. The first memory image could be considered a key to the following value of a memory image. But then the value becomes a key to the next memory image. This system is sometimes referred to as a doubly linked list for the ability to traverse forwards and backwards in the chain.

The **rule traversal** method uses a pre-selected set of memory images to which memory images can be associate to. Any kind of data type can be used if the order is followed consistently so that the images can all be covered when being traversed. Traversal rules are unique to each type of memory system.

## System maturity

The first type of memory system that is usually needed is a **dynamic style** where information is stored and used as it is acquired and blended into a system. Pieces of information are understood and chunked using the imagination to organize it. It is a way to immediately respond to all the input in way that involves a **learning or creative** process as new pieces of information are blended in. The ordering can change and there could be an expectation of using the system for short-term timespans.

If a dynamic style system has been used for some time and stopped evolving or needs to be communicated, it must be formalized into a **static style** and made more easily remembered. This means that the knowledge being stored is known beforehand so is applicable to a previous dynamic system or a system where the information is an unchangeable body of knowledge. Then it is a system for long-term use **including using and teaching** others in a rational way and becomes an important knowledge tool.

Static styles from what I’ve seen evolved from a story-telling narrative style to having a structured rule-based style that the sciences encouraged, and technical training depended on. Rule-based knowledge was easier to store as computers became substitutes for knowledge management systems.

# Visual memory systems summary

## Image data types (SEA-IT)

* **Subject** (person, group, organization, role, living thing, fictional character).
* **Enhancements** to the **subject** (tools, costume, expression, shape, size, body features, superpowers), the **action** (speed, scope, severity, associated emotion, associated item), the **item** (texture, size, color), or the **terrain** (weather, plants, animals, time, water and geologic features, domiciles).
* **Action** (a strong verb causing an effect on the item).
* **Items** being acted on that are preferably animated but can be inanimate.
* **Terrain** or location.

Using all five memory image components creates a vivid image more easily remembered. It can also be called a **visual sentence** since it is directly related to the construction of a sentence in English. An association from a memory image can be made to any part of the visual sentence. But the tie to a subject, its enhancements, or its action is usually tied to all three.

The simpler the system is, the less components are used. Systems that associate consistently with a component are anchored to that data type or sometimes a rule is used to provide anchor guidance.

Some data types may evolve to be other data types depending on the need of the memory image. Inanimate objects are easily animated to be subjects and even a location can spring forth a type of character to activate a memory image.

## Visual systems by DTM profile

The basic visual systems have been classified by their data type anchor, the traversal style, and the maturity of the system. Each data type can include some form of enhancement. Systems can be combined to form a compound visual system. Systems can be internal or external.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Dynamic narrative** | **Static narrative** | **Static rule** |
| **Subject - Action** | **Interpretation**. Images suggest narrative logic driven by subjects. | **Story**. Images use relevant narrative logic driven by **subjects** for traversal. Ceremonies, literature, films, sequential art with protagonists. | **Person pegs.**  Images are anchored to a set of ordered **people**. PA and PAO systems, person pegs. |
| **Item** | **Puzzle**. Images suggest narrative logic driven by objects. Objects at a crime scene. Riddles. | **MacGuffin**. Images use relevant narrative logic driven by **objects** for traversal. The Maltese Falcon, Holy Grail. | **Object pegs.**  Images are anchored to a set of ordered **objects**. Number pegs, object templates. |
| **Terrain (method of loci)** | **Dreaming**. Images suggest narrative logic driven by locations. | **Journey**. Images use relevant narrative logic driven by **locations** for traversal. Songlines tied to Country. Road movies. | **Palace**. Images are anchored to a set of ordered **locations**. Location pegs, position templates, grids, henges, lukasas, winter counts, quipus. |

## Common traversal rules

### Person or Item

* **sequence** (alphabetic, numeric, etc.)
* **peg system** (imposed sequence)
* small to large

### Terrain

* **pre-existing path**
* path by proximity, alignment, contrast, or repetition of elements.
* front to back
* left to right
* top to bottom
* external POV outside to inside
* internal POV low (starting near your feet) to high
* external POV high (starting near your head) to low
* internal POV: inside to outside
* clockwise (north, east, south, to west or 12, 1, 2, etc.)
* 6-sided die - turn right, rotate forward

# Musical memory systems summary

## 5 sound data types (PILTD):

Interval / chord?

* Pitch (frequency, note, scale)
* Intensity (volume)
* Location
* Timbre
* Duration-Length
* Key

## Auditory systems

|  |  |  |
| --- | --- | --- |
|  | **Static** | **Dynamic** |
| **Key** | In key. | Out of key. |
|  | Recording. | Interpretation. |
|  | Song. Composition. Melody. | Motif/riff based. |
|  | **Note based repertoire** |  |
|  | **Chord based repertoire** | Music form. |

According to the Oxford Companion to Music[3] there are several ways of developing a theme. These include:

* The division of a theme into parts, each of which can be developed in any of the above ways or recombined in a new way. Similarly, two or more themes can be developed in combination; in some cases, themes are composed with this possibility in mind.
* Alteration of pitch intervals while retaining the original rhythm.
* Rhythmic displacement, so that the metrical stress occurs at a different point in the otherwise unchanged theme.
* Sequence, either diatonically within a key or through a succession of keys.

## Common traversal rules

* low to high pitch
* slow to fast tempo
* soft to loud intensity
* simple meter to complex meter

# Taste/smell memory systems summary

## 4 taste/smell data types (FLAP):

* Flavor/scent
* Location
* Aesthetic (presentation)
* Physical traits (texture, temperature, sizes, quantity)
* Chef style

## Taste/smell systems

|  |  |  |
| --- | --- | --- |
|  | **Static** | **Dynamic** |
|  | Classic dish. Brigade de cuisine. | Experiment. |
|  | Standard fare. Haute cuisine. |  |
|  | Flight. | Tasting menu. |
|  | Meal. | Tasting. |
|  | Recipe. Fast food kitchen. | Flavor pairing |

## Common traversal rules

* Sweet to sour
* Bland to salty
* Cold to hot
* Weak to strong intensity
* American or European order of dishes