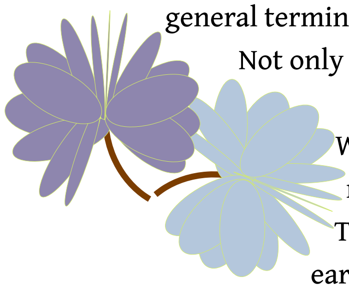
Chapter 16. Communication

(Latest update: 2024-09-18; revised through "Ideas and Language" 2025-04-22)

GENI ⅃Ꞁꓘ-- *Nwe*-- and ⅄ꓶᒋ-- *Pa*-- provides words for describing communication. The objective is to provide general terminology for each stage in communication processes, regardless of the level complexity. Not only human, but other forms of communication will find useful terms for describing how each communication system works.



Within the Nwehu Nuswei framework, the **Open Systems Interconnection (OSI)** model[21] provides the general structure for discussing communication processes. Though used primarily in the realm of digital communications and developed fairly early, it still provides a useful framework for considering communication in general. The OSI Model is discussed in more detail in 3 below.

Several diagrams on the following pages lay the relationships out graphically. The Layers and SPECIES follow the putative flow of communication from the SENDER's initiation, through concept, to a physical manifestation of some sort (sounds, visual motions or symbols…). This physical communication then roughly follows the reverse path from manifestation to concept in the RECIPIENT. The intension is to provide vocabulary flexible enough to serve for multiple theories of how this happens. SPECIES are assigned as shown in here:

0	*Nweh-*	Information	§16.1	11	*Nwec-*	Message (1)	16.6.4
1	Nwex-	Initiation	16.5.1	12	*Nwet-*	Message (2)	16.6.5
2	*Nwes-*	Ideas & Language	16.5.2	13	*Nwep-*	Session	16.7.1
3	*Nwef-*	Transmitting Ideas	16.5.3	14	*Nweg-*	Externalization	16.7.2
4	*Pah-*	Language	16.8.1	15	*Nwej-*	Participant Interaction	16.7.3
5	*Paf-*	Semantics	16.5.4	16	*Nwed-*	Mechanism	16.7.4
6	*Pax-*	Grammar	16.5.5	17	*Nweb-*	Medium	16.7.5
7	*Par-*	Meaning	16.5.6	18	*Pah-*	Language	16.8.1
8	*Nwen-*	Semiotics	16.6.1	19	*Pay-*	Linguistics	16.8.2
9	*Nwem-*	Encoding	16.6.2	20	*Pan-*	Word classes	16.8.3
10	*Pas-*	Lexical Symbolism	16.6.3	21	*suc-*	Ideal and Instance	16.8.4

SPECIES assignments for communication terms

21 https://www.itu.int/en/about/Pages/default.aspx (accessed 2024-09-11)

16.1. Communicating Information

The purpose of COMMUNICATION is – arguably – to transmit INFORMATION. That's why the first SPECIES in the COMMUNICATION GENUS is 'Information': ᒧᓀᵻ- *Nweh-*.

In the context of COMMUNICATION, NN defines **INFORMATION** as **any conglomeration of** IDEAS **that has some significance to the** SENDER. IDEAS are discussed in more detail in §4.2.2. There are many sources and types of INFORMATION; this is a fascinating area of psychological and neurological study. The topic of INFORMATION is closely related to "ontology", the philosophical exploration of "being". NN tries to provide tools for various approaches without espousing any one philosophy. INFORMATION may be considered as part of "cognition". My current inclination is to represent 'cognition' as a neural phenomenon in a GENUS of the "Life Sciences" FAMILY, ᖶᓄ-- *Jwoi--*, as yet undefined.
The structure of SPECIES ᒧᓀᵻ- *Nweh-* 'Communication' is based on two DIMENSIONS:

- WAVE – FIELD – PARTICLE (§1.3.1), represented in the core vowels ᐞ - ᐳ - ᐢ *(e – a – o)*
- Processing level, represented in the peripheral vowels ᒪ - ᓯ- ᒪ - ᓯ *(i – w-i – w)*

"Processing level" reflects the view that observation of raw facts or "data" is the first stage of understanding. When raw "data" is processed, "information" can be derived; and the result of consolidating sources of information is "knowledge". The NN terms are ᒧᓀᵻᒪ *nwehi* 'data: fact at the most basic level'; ᒧᓀᵻᓯᒪ *nwehwi* 'information: data that is combined to produce useful or actionable results'; ᒧᓀᵻᓯ *nwehw* 'knowledge: Information that is combined to produce comprehensive systems of intelligence.

The complete SPECIES structure follows.

*Dp 16.1: **Information** vocabulary table with Notes*

Core value		General		Data		Knowledge		Information	
General	u	***nwehu***	**Communication**	***nwehi***	**Data**	***nwehw***	**Knowledge**	***nwehwi***	**Information**
Wave – Action	e	***nwehe***	**Communication process**	***nwehei***	**Data stream**	***nwehwe***	**Knowledge stream**	***nwehwei***	**Information stream**
Field – State	a	***nweha***	**Communication system**	***nwehai***	**Data as cloud**	***nwehwa***	**Wisdom**	***nwehwai***	**Information as cloud**
Particle – Object	o	***nweho***	**Communication instance**	***nwehoi***	**Datum**	***nwehwo***	**Knowledge object**	***nwehwoi***	**Piece of information**

Notes								
nwehu	The study of communications, and specific communication systems; as opposed to communication itself (= nweku)	***nwehi***	Data: fact at the most basic level	***nwehw***	Knowledge: Information that is combined by sophisticated techniques to produce comprehensive systems of intelligence	***nwehwi***	Information: Data that is combined to produce useful or actionable results
nwehe	Informing: the process of imparting information, such as speaking, writing, reading, teaching, reporting, producing books, videos, etc.	***nwehei***	A stream or process for conveying data in space or time: speaking, writing, storing or transmitting data on computers and networks	***nwehwe***	Knowledge stream: dictionary, encyclopedia, school system, news organization, series of books, documentaries…	***nwehwei***	Information stream: a process or system for conveying information, such as a book, a newspaper, a news broadcast; the Internet
nweha	The data and information available to any given person, institution, or culture	***nwehai***	A mass of basic-level facts	***nwehwa***	Results of careful thought and analysis of broad compilations of information, especially as formed into coherent systems of thought, religion, morality, philosophy, cosmology...	***nwehwai***	A mass of compiled information, such as statistics, narratives of events…
nweho	A piece of fact at any level of detail or usefulness	***nwehoi***	A fundamental particle of fact	***nwehwo***	A relatively broad field of knowledge	***nwehwoi***	A composite of fundamental particles of fact relating to an object or relatively simple system; database

16.2. Communication Model Discussion

𝔇ρ 16.2 represents the conceptual framework used to organize communication terms in NN. This was shown in 𝔇ρ 4.1, and is discussed in more detail here. The overall flow of communication, and each of the items shown in 𝔇ρ 16.2 are discussed in the following section.

16.2.1. Communication Flow

COMMUNICATION itself can be understood as a FIELD. At this highest level, RULES for processes like feedback can be represented. Communications have purposes, and these can also be understood as FIELDS within which specific communication events or processes take place. The flow of communication is depicted as starting with the SENDER in the upper left corner of 𝔇ρ 16.2. As suggested by arrow-shaped items, communication progresses down the left side of the display until it reaches the bottom, where it turns right and proceeds up the right-hand side, ending with the RECIPIENT in the upper right corner.

Items are considered as either WAVES, FIELDS, or PARTICLES (discussed in §4.2.3).

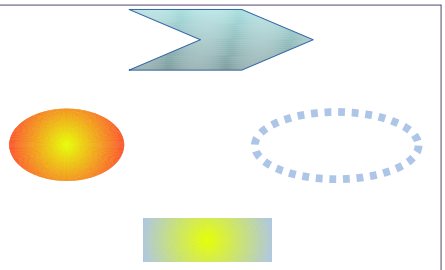
Species ᒧᖻɪ- *Nweh-* 'Communicating information' has words for expressing communication processes (§16.1). ᒧᖻɪᵻ *Nwehu is* 'communication' (as in the name of the language, Nwehu Nuswei); ' communication flow' in general is ᒧᖻɪᑯ *Nwehe,* and ᒧᖻɪᑯ *Nwehei* is 'a stream or process for conveying data'.

We now consider each 𝔇ρ 16.2 item in in turn.

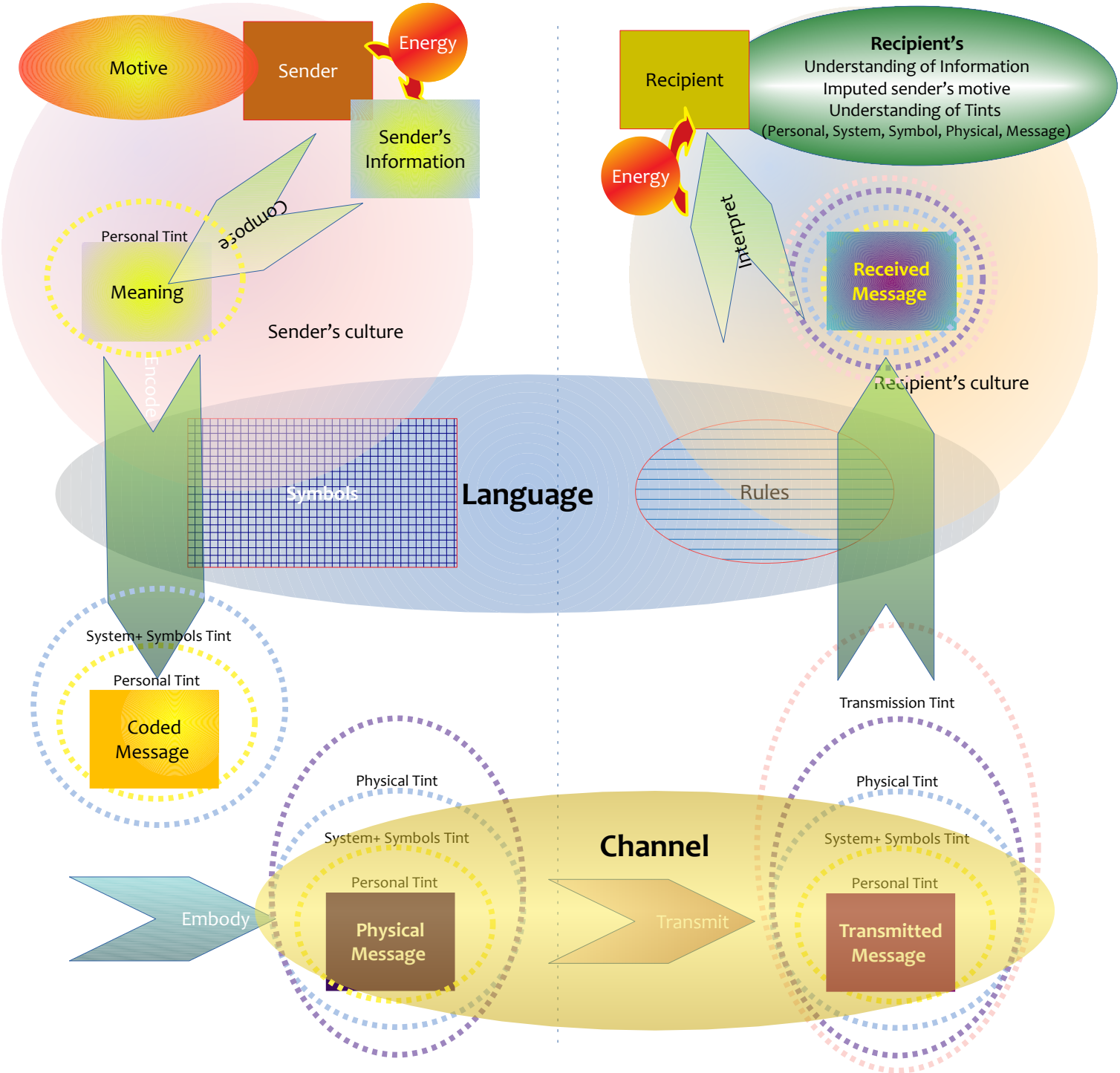
WAVES are represented by arrows:

FIELDS are shown as ovals (including those with dotted-line borders):

PARTICLES use rectangles as their symbols:



𝔇ρ 16.3: WAVE, FIELD, and PARTICLE in 𝔇ρ 16.2



Dp 16.2: Newhu Nuswei Communication Model

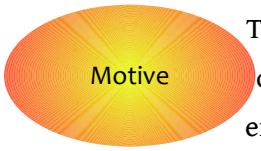
16.2.2. Nwehu Nuswei's Representation of Communication

16.2.2.1. SENDER: 𐑙𐑢𐑧𐑡𐑝 *Nwejoi*

𐑙𐑢𐑧𐑡 *nweji* 'some entity that originates a MESSAGE' and 𐑙𐑢𐑧𐑡𐑝 *nwejoi* 'a specific entity originating a MESSAGE'. This is usually a human being, but can be any ANIMATE or QUASI-ANIMATE entity. Computers and communication devices capable of originating MESSAGES are considered QUASI-ANIMATE. (§7.2.4 is the discussion of ANIMACY.) The important qualification for the SENDER is the ability to be MOTIVATED, to form a MESSAGE, to ENCODE, to EMBODY, and to TRANSMIT. Most animals have these abilities, at least at a basic level. Computers and routers clearly have MESSAGING ability, but perhaps attributing MOTIVATION to them is stretching a point. For the purpose of representing computer communications in NN, we may say they are "motivated" by software or firmware that initiates COMMUNICATIONS and responds to MESSAGES received. On the other hand, a basic telephone (as opposed to a "smart phone"), has the ability to EMBODY and TRANSMIT messages, but has no MOTIVATION to initiate COMMUNICATION or COMPOSE a MESSAGE. Devices that TRANSMIT MESSAGES (radio, telephone, book) are considered CHANNELS rather than SENDERS.

Senders and other participants in a session are represented in SPECIES 𐑙𐑢𐑧𐑡- *Nwej-* (§16.7.3).

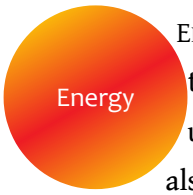
16.2.2.2. Motive: 𐑕𐑵𐑣𐑩 *Suha*



This is the reason why a SENDER originates a MESSAGE. A MOTIVE is presupposed because communication requires expenditure of ENERGY, and since ENERGY needs to be replenished, entities are normally designed to use ENERGY primarily when its use results in some benefit. For example, the MOTIVE could be a desire to share INFORMATION (STATEMENTS), to elicit an action or reaction from another entity (QUESTION, REQUEST, COMMAND), to relieve frustration (EXCLAMATION), or establish a social relationship at some level (simple gretings).

The reason for doing something is 𐑕𐑵𐑣𐑩 *suha* 'condition existing before something happens'; the 'goal' of communication intended by the sender is 𐑕𐑵𐑣𐑢𐑦 *suhwi* (§§8.2.17, 16.7.3).

16.2.2.3. Energy: 𐑑𐑧𐑓𐑤 *Tefi*



ENERGY is required at all stages of the communication process (though it is shown only near the SENDER and RECIPIENT in 𐑛𐑹 16.2). The human brain is well known to be one of the primary users of the body's ENERGY and formulating MESSAGES is no trivial mental activity; ENERGY is also required to TRANSMIT a MESSAGE through space and time. The amount of ENERGY used by SENDER and RECIPIENT is partly determined by the strength of MOTIVATION, partly by overall ENERGY level (fatigue, hunger, distraction). The desire to use as little ENERGY as possible in communication is conceivably

a large factor in language-change over the course of history, as SENDERS strive to reduce complexities to conserve ENERGY.

'ENERGY' in the sense of 'effort' is 𐑖𐑦𐑓𐑦 *tefi* (§16.7.3).

16.2.2.4. SENDER'S Information: 𐑯𐑢𐑧𐑣𐑦 𐑯𐑢𐑧𐑐𐑦-𐑣𐑵𐑓𐑸 *Nwehwi nwepi-hufa*

Sender's Information

'INFORMATION' in the broad sense used here was discussed in more detail in §16.1. 'Sender´s information' is 𐑯𐑢𐑧𐑣𐑦 𐑯𐑢𐑧𐑐𐑦-𐑣𐑵𐑓𐑸 *nwehwi nwepi-hufa* (§16.1).

16.2.2.5. COMPOSE: 𐑯𐑢𐑧𐑟𐑦 *Nwesei*

Compose

COMPOSING is the process of organizing IDEAS into a linear format that can be encoded using language. As discussed in §4.2.4, IDEAS occur to people in something like a multidimensional cloud, but TRANSMITTED language is unidimensional (linear) so the IDEAS must be put into some sort of order related to language structure. Although this is to some extent pre-verbal, the **structure** of language must be taken into account during COMPOSITION. The "Whorf-Sapir" hypothesis argues that language influences how people think, and though this claim can be overstated, it is based on an element of truth. The resulting structure of ideas may correspond to some degree with what Noam Chomsky and many others have called 'deep structure'.

𐑯𐑢𐑦𐑟- *Nwes-* (§16.5.2) and 𐑯𐑢𐑦𐑓- *Nwef-* (§16.5.3) are the species representing words related to composing; 𐑯𐑢𐑧𐑓𐑦 *nwefi* is 'composition'. The resulting (deep) structure is 𐑯𐑢𐑧𐑓𐑬 *nwefoi.*

16.2.2.6. MEANING: 𐑯𐑢𐑧𐑟𐑬 *Nwesoi,* 𐑐𐑸𐑮𐑵 *Paru*

Meaning

NN has two related words corresponding to the English word "meaning": 𐑯𐑢𐑧𐑟𐑬 *nwesoi* is 'a specific set of ideas organized for expression in a language'; 𐑐𐑸𐑮𐑵 *paru* is 'the relation between a symbol and the idea it is intended to convey'. MEANING originates in the mind (or equivalent) of an entity when a situation MOTIVATES a SENDER to combine IDEAS into a COMMUNICABLE form. Because COMMUNICATION is seldom perfect, the SENDER'S meaning and the RECIPIENT'S understanding are necessarily represented as distinct. NN has two related words corresponding to the English word "meaning":

Three SPECIES represent different aspects of 'meaning' in NN. 𐑯𐑢𐑧𐑟- *Nwes-* 'Ideas and Language' (§16.5.2) focuses on IDEAS and their organization; 𐑐𐑸𐑓- *Paf-* 'Semantics' (§16.5.4) and 𐑐𐑸𐑮- *Par-* 'Meaning' (16.5.6) focus on different aspects of the relationship between SYMBOLS and IDEAS. 𐑐𐑸𐑓𐑵- *Pafu-* and 𐑐𐑸𐑮𐑵- *Paru-* in effect are synonymous for 'meaning'; other words in those two SPECIES are not synonymous. (In fact, 𐑐𐑸𐑮𐑲- *Parai-* means 'synonym'.)

16.2.2.7. TINT: 𐤐𐤅𐤐𐤉, *Pafwi*

Physical Tint

TINT is any meta-INFORMATION that accompanies a MESSAGE. Several kinds of meta-INFORMATION are added to the IDEAS intended by the SENDER at many points during its journey from SENDER to RECIPIENT. The *Dp* 16.2 identifies these:

- **SENDER'S Personal TINT:** the way an entity originates and organizes IDEAS; personality; energy level; mood; dialect; social register; physiological differences
- **SENDER'S Cultural TINT:** the importance given to values, certain ideas, social relations and similar factors in a SENDER'S upbringing and social circle
- **System+Symbol TINT:** though language may not control what people can think about, it can influence how they express themselves through the sets of symbols available and the rules for assembling them.
- **Transmission or CHANNEL TINT:** The physical CHANNEL of TRANSMISSION makes a great contribution to the meta-INFORMATION in a message. Sound-based MESSAGES "feel" different from written ones; levels of "noise" (literal noise or "visual noise"); paper color; letter font, size and color; etc.
- **RECIPIENT'S Cultural TINT:** even minor differences between SENDER'S and RECIPIENT'S culture (such as attending different schools as children) can cause differences in a RECIPIENT'S UNDERSTANDING of a SENDER'S MESSAGE. This is amplified if SENDER and RECIPIENT are from very different cultures.
- **RECIPIENT'S Personal TINT:** Personality and physiological differences can change the way individuals receive and INTERPRET MESSAGES. This is amplified by differences between SENDER and RECIPIENT'S hearing, eyesight, and underlying psychology.

The NN word 𐤐𐤅𐤐𐤉 *pafwi* 'TINT concept' expresses the concept of MEANINGS added to MESSAGES in addition to the SENDER'S intended IDEAS (§16.5.4).

16.2.2.8. Culture

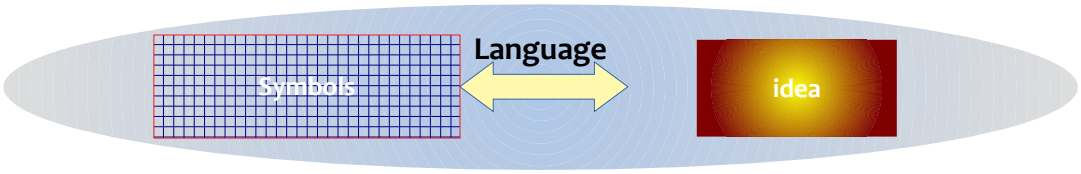
Broadly speaking, "culture" is a set of values and perspectives shared by a group. These shared aspects determine how INFORMATION is framed, both in terms of what is considered necessary and what is assumed to be unnecessary. There is a great deal of overlap between LANGUAGE and culture, but it is generally observed that within a given LANGUAGE there are likely to be multiple cultures; and that many aspects of culture are shared by those who do not necessarily share the same LANGUAGE.

LANGUAGE creates associations between SYMBOLS and IDEAS, but culture modifies these associations in various ways. In human LANGUAGES it may helpful to distinguish between the 𐑚𐑓𐑚𐑤 *pafe* 'denotation' of a word – the SYMBOL-IDEA association assigned in the LANGUAGE system – and the 𐑚𐑓𐑚𐑣 *pafwe* 'connotation', or cultural TINT associated with the word (§16.5.4).

16.2.2.9. Language: 𐑚𐑓𐑦𐑑 Pahu

Language

NN defines **LANGUAGE** as **any system of symbols and rules for communication**. Within NN, LANGUAGE is considered as a large, complex FIELD consisting of RULES for the association of SYMBOLS with IDEAS at various levels. These levels run at the high end from DISCOURSE (Chapter 9) composed of multiple coordinated MESSAGES, through individual MESSAGES, down to basic components such as glyphs (letter shapes), phones (sound units), bytes (electromagnetic bit patterns), pheromones (chemically transmitted symbols), etc.



A "natural" human LANGUAGE exsits as a concept shared by those who use it. To "learn" a given LANGUAGE, each user develops a personal version of the SYMBOLS, RULES, and IDEAS of the LANGUAGE. The personal versions of SENDER and RECIPIENT must correspond largely to each other; the greater the differences, the less effective COMMUNICATION becomes.

A major feature of LANGUAGE is the creation of associations between SYMBOLS and IDEAS (semantics). Another is to provide ways of assembling the SYMBOLS to effectively convey intended MEANINGS (grammar).

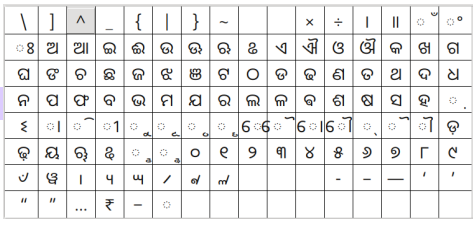
𐑚𐑓𐑦𐑑- *Pahu-* is the NN word for 'language'; genus 𐑚𐑓-- *Pa--* represents concepts related to language and linguistics (§16.8).

16.2.2.10. SYMBOLS: 𐑡𐑣𐑚𐑤 Nwemo

Symbols

The broad definition used here is that a **SYMBOL is a physical or abstract entity used to refer to something else**. SYMBOLS have a shared existence as abstract concepts (𐑟𐑦𐑡𐑪 *sunw* 'IDEAL forms') for those who share the system (LANGUAGE or culture).

SYMBOLS are EMBODIED using whatever means is convenient to the SENDER (writing on paper, carving, speaking, singing, electric or mechanical energy, chemical diffusion...). The EMBODIMENT of the symbol approximates the symbol's IDEAL form to a greater or lesser degree (as

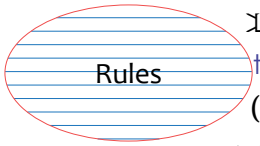


in a printed character vs. Informal hand writing). The RECIPIENT'S identification of the SYMBOL may differ from the SENDER'S intention, if the sender's EMBODIMENT does not correspond to the RECIPIENT'S concept.

SYMBOLS exist on many levels of communication. At the most basic level, they are not associated with MEANINGS. At higher levels, SYMBOLS are usually associated with one or more IDEAS.

𐑇𐑢𐑇𐑑 *Nweno* is the specific NN word for 'symbol' (§16.6.1).

16.2.2.11. *Rules:* 𐑚𐑮𐑤𐑦 *Paxwi*



𐑚𐑮𐑤𐑦 *paxwi* '**RULE**' in NN is defined as a pattern explaining how an operaton is applied to various components to produce a result that advances toward a message. (Rules and systems at various levels of language are expressed by several more specific words.)

Just as important as SYMBOLS are the RULES for putting them together, which like SYMBOLS exist at many levels of language. Every human language has grammatical rules for encoding MESSAGES, and phonotactic rules for EMBODYING them in a speech CHANNEL. Written languages have rules of spelling and what direction to write in (§16.5.5).

16.2.2.12. *ENCODE:* 𐑇𐑢𐑇𐑤 *Nweni*

Once the SENDER'S MEANING has taken shape in linear order, it can be ENCODED. **ENCODING is the process of taking** COMPOSED **(linearly organized)** IDEAS **and assigning language** SYMBOLS **to them using the** RULES **of a particular language.** At this point the MESSAGE is not yet in physical form. It is still "in the sender's head".

Two species, 𐑇𐑢𐑇- *Nwen-* and 𐑇𐑢𐑧𐑇- *Nwem-*, represent words associated with the ENCODING and DECODING process. 𐑇𐑢𐑧𐑘- *Nwemu* 'ENCODING' refers to the relationship between SYMBOLS and IDEAS (§16.6.1-2).

16.2.2.13. *MESSAGE:* 𐑇𐑢𐑤𐑘 *Nwecu*

A **MESSAGE** is **INFORMATION that has been COMPOSED into a form that can be expressed to others using a language.** At this point in the process, it is a set of words arranged according to the RULES of some language, but it is still "in the senders head": it exists as neural impulses with no external manifestation. Yet it has already accumulated at least two TINTS: the SENDER'S personal TINT, and the TINT given it by the available SYMBOLS and structural RULES of the SENDER'S language.

ɾɣʟ- *Nwec-* (§16.4.4) and ɾɣɟ- *Nwet-* (§16.4.5) are two SPECIES that represent different aspects of MESSAGES. The word for 'MESSAGE' is ɾɣʟɪ *Nwecu.*

16.2.2.14. EMBODY: ɾɣтɳ Nwegwi

Embody

EMBODYING is the process of converting abstract SYMBOLS into physical (transmissible) SYMBOLS. This is the process by which the neural impulses leave the mind of the sender and enter into physical existence. It is also at this point that the ENERGY required for COMMUNICATION becomes apparent – the purely mental steps preceding this require ENERGY which is not as apparent.

SPECIES ɾɣʟ– *Nweg-* represents the physical aspects of MESSAGES, including TRANSMISSION CHANNELS. The word for 'embodiment' is ɾɣʟɳ *Nwegwi* (§16.7.1).

16.2.2.15. Physical MESSAGE: ɾɣтɸ Nwegwoi, ɾɣʟɳ Nwecwi

Physical Message

The physical form of an EMBODIED MESSAGE depends on the CHANNEL chosen for communication: if spoken, the message becomes audible; if written, visible, etc. Some forms are evanescent, while others have the potential of being long-lasting.

ɾɣʟɸ *Nwegwoi* is the NN word for an physical message, or ɾɣʟɳ *Nwecwi* (§16.7.2).

16.2.2.16. CHANNEL: ɾɣтɒ Nwego

Channel

NN uses the term **CHANNEL** to mean a physical medium and METHOD for MESSAGE transmission. CHANNELS exist in the physical realm to provide a pathway between SENDER and RECIPIENT. The physical form is a particular medium, of which there are many. Of course for human communication there are two primary types of CHANNEL: speech and writing. Motion is a secondary CHANNEL, well developed in sign languages and more informal in such activities as interpretive dance. The primary CHANNELS have many sub-types. For example, written CHANNELS include books, hand-written notes, signage, codes of law, gravestone engraving. Each CHANNEL has its own **METHODS**, which are the rules governing how MESSAGES are EMBODIED. Of course, each CHANNEL imparts its own unique TINT to MESSAGES as well.

ɾɣʟɪ *nwegu* represents the concept of channels, while a specific channel is known as ɾɣʟɒ *nwego* (§16.7.2).

16.2.2.17. Transmit: ɾɣтч Nwegw

Transmit

This is a physical process by which the MESSAGE is moved from SENDER to RECIPIENT. The process varies depending on the physical nature of the CHANNEL. Very commonly the TRANSMISSION is from one location in space to another, but TRANSMISSION to a later time (or for storage) is common as well.

𐑔𐑢𐑧𐑜𐑢 *Nwegw* is 'TRANSMISSION' (§16.6.4).

16.2.2.18. Transmitted MESSAGE: 𐑔𐑢𐑧𐑒𐑢𐑦 Nwecwi

This is the MESSAGE as it is 'in transit'. Ideally, the transmitted message would be identical to the SENDER'S physical MESSAGE, but this is not necessarily true. Often during TRANSMISSION the CHANNEL degrades the MESSAGE from its original form, due to noise, damage, or distortion.

The TRANSMISSION phase of MESSAGINIG is 𐑔𐑢𐑧𐑒𐑢𐑦 *Nwecwi* (§16.6.4).

16.2.2.19. Received MESSAGE: 𐑔𐑢𐑧𐑒𐑢 Nwecw

This is the MESSAGE after it passes through a particular CHANNEL and arrives at the RECIPIENT. The received message is 𐑔𐑢𐑧𐑒𐑢 *nwecw* (§16.7.2).

16.2.2.20. Decode: 𐑔𐑢𐑧𐑥𐑢 Nwemw

Having arrived at the RECIPIENT, the process of DECODING can begin. As indicated on 𐑛𐑐 16.2, the process passes through the same LANGUAGE with its rules and SYMBOLS as was used by the SENDER to ENCODE it. This is an oversimplification, given that LANGUAGE is stored in each person's individual brain, and each person's version of its SYMBOLS and rules is different to some degree.

Add to those differences the fact that the TRANSMITTED MESSAGE also passes through the RECIPIENT'S culture, and it's clear how easily misunderstandings happen.

The decoding phase in NN is 𐑔𐑢𐑧𐑥𐑢 *nwemw.* (§16.6.2)

16.2.2.21. Interpret: 𐑔𐑢𐑧𐑓𐑢𐑦 Nwefwi

This process might also be called de-composing, since it is the RECIPIENT'S equivalent of the SENDER'S act of COMPOSING the MESSAGE. It is the process of taking the linearly arranged IDEAS extracted from the received MESSAGE, and attempting to form a coherent multidimensional re-creation of the IDEAS the SENDER tried to convey.

In NN terminology, 𐑔𐑢𐑧𐑓𐑢𐑦 *nwefwi* is 'INTERPRETATION', that is, reorganizing the IDEAS from a received MESSAGE into an individual's own (neural) IDEA structure (§16.5.3).

16.2.2.22. RECIPIENT'S understanding: 𐑔𐑢𐑧𐑓𐑢 Nwefu

The goal of the COMMUNICATION process is RECIPIENT'S UNDERSTANDING. UNDERSTANDING is a step beyond INTERPRETATION. Whether intended or not, UNDERSTANDING includes not

only the INFORMATION the SENDER intended to send (as damaged or distorted by the CHANNEL), but also meta-INFORMATION (TINT) such as the RECIPIENT'S imputed version of the SENDER'S motive, and some degree of UNDERSTANDING of all the TINTS – personal, system, symbol, physical, channel, etc. When the RECIPIENT has INTERPRETED an incoming MESSAGE and all its TINTS, they still need to fit those into the situation being discussed, the implications of the MESSAGE, whether a response is expected or required, and ultimately how the MESSAGE fits in with the recipient's overall understanding of life and the world as a whole. Unfortunately, UNDERSTANDING includes misunderstanding.

NN uses ɾʁɻɥ *nwefw* and related words to represent 'UNDERSTANDING' (§16.5.3).

16.3. The OSI Model

This section presents a more detailed look at COMMUNICATION through the lens of the OSI Seven Layer Model.

This model is approved and maintained by the International Telecommunication Union (ITU), "the United Nations specialized agency for digital technology" Formally known as Recommendation X.200, it was approved 1994-07-01[22] although its substance was developed from Claude Shannon and Warren Weaver's 1948 paper "A Mathematical Theory of Communication"[23]

The seven "layers" (or steps) of communication are grouped into two categories, discussed as follows.

16.3.1. Host layers

The "Host" in this model refers to "nodes" (devices or entities) from which messages are initiated and to which they are directed. This corresponds to the NN's SENDER and RECIPIENT. The numbering follows a "top-down" approach, starting with seven. The "host layers" are 7, 6, 5 and 4.

7. **Application**: In information systems, this layer includes user software interfaces, such as word processing, keyboard and mouse input, data retrieval, file access, mathematical calculations, and so forth; adapted to people, NN treats this layer as the neurological level of thinking.
6. **Presentation**: Translation of data between a networking service and an application; including character encoding, data compression and encryption/decryption; in people this is treated as the layer in which IDEAS are put into LANGUAGE.

22 https://www.itu.int/rec/T-REC-X.200-199407-I/en (accessed 2024-09-11)
23 Shannon, Claude Elwood (July 1948). "A Mathematical Theory of Communication". Bell System Technical Journal. 27 (3): 379–423.

5. **Session**: Managing communication sessions, i.e. threads of information exchange in the form of multiple back-and-forth transmissions between two nodes; for people, this encompases communication units such as dialog, stories, books, etc.

4. **Transport**: Reliable transmission of data segments between points on a network, including segmentation, acknowledgement and multiplexing; in people, this is where neurological representations of language are expressed in physical formats.

16.3.2. Media layers

3. **Network**: Structuring and managing a multi-node network, including addressing, routing and traffic control; here, people have conversations, interactions, and narratives are segmented into appropriate units.

2. **Data Link**: Reliable transmission of data frames between two nodes connected by a physical layer; for people, this is where physical actions are carried out to transmit messages.

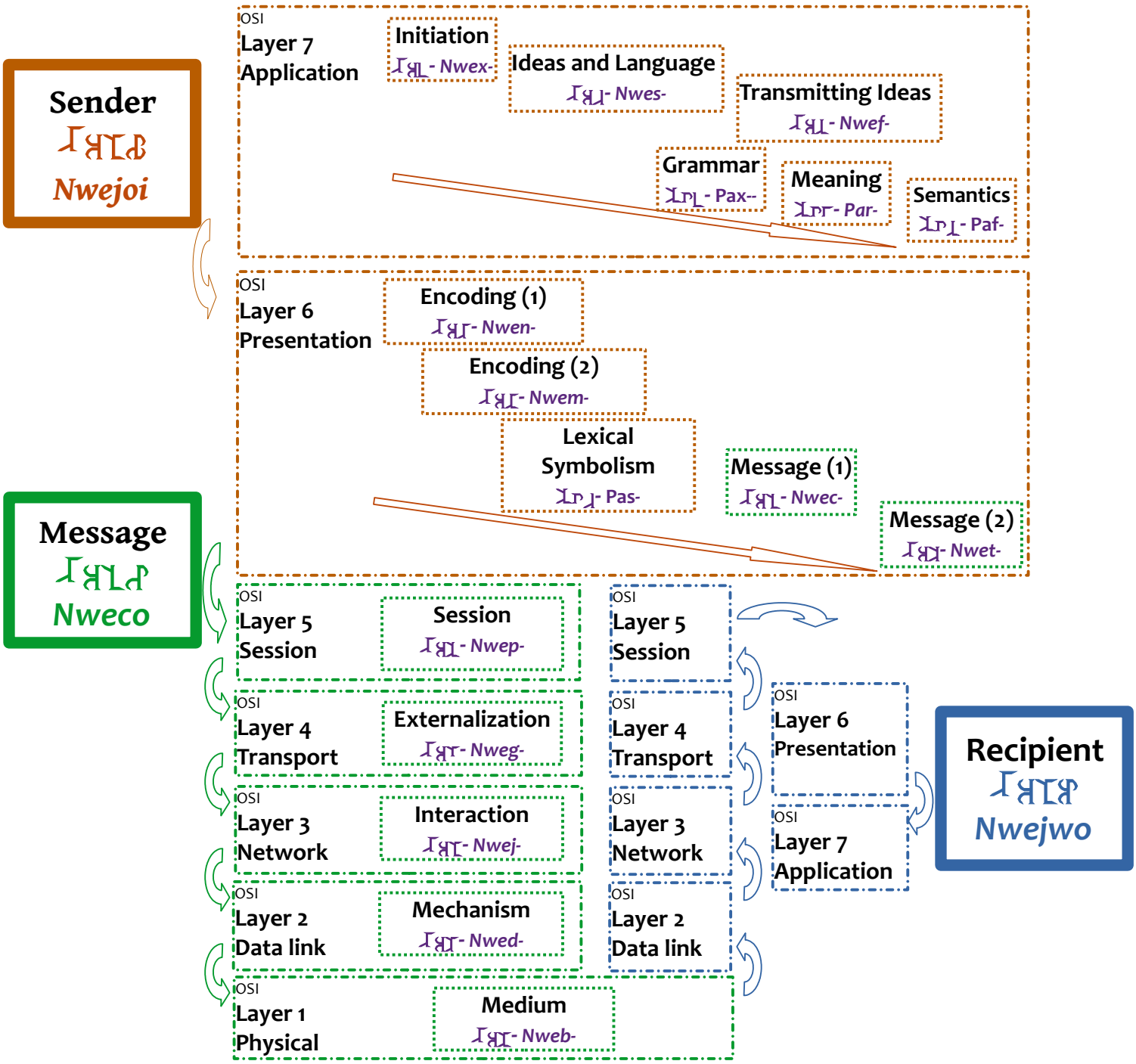
1. **Physical**: Transmission and reception of raw bit streams over a physical medium; NN uses the term CHANNEL to represent the physical media of communication – spoken utterances, pages with writing, and so forth – the substance of transmitted communication.

16.4. NN and the OSI Model

Nwehu Nuswei adapts the OSI model in organizing geni, species, and words related to communication and language. Because it is an adpatation for living beings – particularly humans – it does not follow the digital model in all details. NN does not (yet) have specific words to identify each OSI layer.

𝔇ρ 16.3 charts the flow of COMMUNICATION through the OSI Seven Layer Model, showing how it has been adapted and which NN SPECIES represent concepts in each layer.

𝔇ₚ 16.3 OSI Seven Layer Model SPECIES Overview



16.5. NN SPECIES Details for OSI Layer 7

16.5.1. Initiation: 𐤉𐤎𐤋 – *Nwex-*

This word-SPECIES provides vocabulary for expressing the factors which go into initiating a COMMUNICATION.

Even the most simple-seeming COMMUNICATION requires pulling together information from multiple locations in the brain as well as the situation in which the SENDER and RECIPIENT find themselves.

This SPECIES structure owes a lot to the work of Michael Corbalis:
https://en.wikipedia.org/wiki/Michael_Corballis

16.5.1.1. Vocabulary Dimensionality of This Species

This species is is organized dimensionally, with core vowels 𐤄 𐤁 𐤏 *e a o* representing WAVE, FIELD, and PARTICLE; and peripheral vowels 𐤉 𐤅-𐤉 𐤅 *i w-i w* broadly clustered as communication, informing, socializing, and performing, as noted in 𝔇𝔭16.4. Vocabulary Dimensionality of This Species

- Core vowels
  - - : general
  - 𐤄 *e*: WAVE, action
  - 𐤁 *a*: FIELD, system
  - 𐤏 *o*: PARTICLE, instance
- Peripheral vowels
  - - : communication broadly
  - 𐤉 *i*: informing
  - 𐤅-𐤉 *w-i*: socializing
  - 𐤅 *w*: performing

Initiation OSI **Layer 7: Application**

𐤉𐤎𐤋 - *Nwex-*

Initiation of communication	self, identity	context awareness	sender-receiver awareness
image retrieval & creation	introspection	collecting information	mental synchronization
creative, constructive	lived memory	knowledge of the world	imagination
expressible information	sensations, concepts	things, actions, places	reasons

*𝔇𝔭 16.4: **Initiation** Species Organization*

*𝔇𝔭 16.5: **Initiation** vocabulary table with Notes*

		Communicating		Informing		Socializing		Performing	
General	**u**	***nwexu***	**Initiation of communication**	***nwexi***	**self, identity**	***nwexw***	**context awareness**	***nwexwi***	**sender-receiver awareness**
Wave	**e**	***nwexe***	**image retrieval & creation**	***nwexei***	**introspection**	***nwexwe***	**collecting information**	***nwexwei***	**mental synchronization**
Field	**a**	***nwexa***	**creative, constructive**	***nwexai***	**lived memory**	***nwexwa***	**knowledge-of-the-world**	***nwexwai***	**imagination**
Particle	**o**	***nwexo***	**expressible information**	***nwexoi***	**sensations, concepts**	***nwexwo***	**things, actions, places**	***nwexwoi***	**reasons**

Notes								
	nwexu	Initiation of communication: Start of the communication process	***nwexi***	self, identity: The identity of the sender; the role played by the sender in a communication	***nwexw***	context awareness: Environment in which communication takes place plays a role in all communications; the sender's awareness of this context	***nwexwi***	sender-receiver awareness: Senders generally craft messages in order to fill in gaps in receiver's knowledge; this word represents the sender's awareness of what receiver does and does not know
	nwexe	image retrieval & creation: “Image” here refers to the pre-verbal form of an idea*	***nwexei***	introspection: Retrieving information from the sender's internal mental processes; autonoetic inspection	***nwexwe***	collecting information: Act of assembling information from all multiple dispersed sources to create a message	***nwexwei***	mental synchronization: In communication between individuals, brain waves sometimes becomes synchronized as part of the communication process; when this happens, communication is facilitated
	nwexa	creative, constructive: the condition or force that leads to formation and retrieval of mental images	***nwexai***	lived memory: Sender's memories built up from personal experience	***nwexwa***	knowledge-of-the-world: Sender's background information about the world	***nwexwai***	imagination: Not all communicated information reflects the sender's immediate perception or memory; much involves speculation about other times, places, and possibilities; this word rerpresents this capability
	nwexo	expressible information: a mental image, gathered from memory or created new, that a sender wishes to communicate; similar to nwexoi but less well-defined, more nebulous	***nwexoi***	sensations, concepts: Communicable information retrieved from sensory input; information combined by the sender from these intputs to form a concept of reality	***nwexwo***	things, actions, places: Sender's internal map of physical and temporal relationships and activities	***nwexwoi***	reasons: The purpose of some communications is to express aspects of the reasoning process; this word represents expressions of what can generally be categorized as the result of prefrontal cortex operations

- Images are either retrieved from memory in some neurological form, or created through some intellectual process. There are several mental processes and storage locations that must come together to form a communication; ᔑᖻᒪᓀ *nwexe* represents the process of gathering these together.

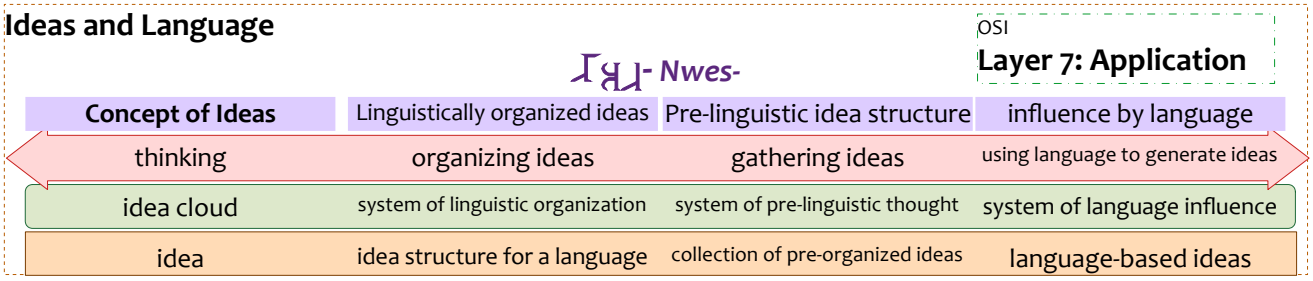
16.5.2. Ideas and Language: *Nwes-*

This SPECIES represents aspects of the relationship between IDEAS and LANGUAGE.
NN presumes that people have IDEAS that are not influenced by the LANGUAGE(s) they speak, but that they may also have IDEAS originating in the words and structures of those LANGUAGES (as postulated in the Whorf-Sapir hypothesis (§16.2.1.5).

COMPOSING is the process of organizing IDEAS into a format that can be ENCODED using LANGUAGE. IDEAS occur to people in something like a 3-D cloud, but LANGUAGE is transmitted in 1-D (linear) form, so the IDEAS must be put into some sort of linear order. Although this is to some extent pre-verbal, the structure of LANGUAGE must be taken into account during COMPOSITION.

16.5.2.1. Vocabulary Dimensionality of This Species

- Core vowels
  - - : general
  - ˻ *e*: WAVE, action
  - ˺ *a*: FIELD, system
  - ˽ *o*: PARTICLE, instance
- Peripheral vowels
  - - : conceptual
  - ˩ *i*: organized IDEAS
  - ˻–˩ *w-i*: UNDERSTANDING
  - ˻ *w*: pre-organized IDEAS



*Dp 16.6: **Ideas and Language** Species Organization*

*Dp 16.7: **Ideas and Language** vocabulary table with Notes*

		General		Organized		Pre-organized		Understood	
General	u	*nwesu*	**Concept of ideas**	*nwesi*	**linguistically organized ideas**	*nwesw*	**pre-linguistic idea structure**	*nweswi*	**influenced by language**
Wave	e	*nwese*	**thinking**	*nwesei*	**organizing ideas**	*nweswe*	**gathering ideas**	*nweswei*	**using language to generate ideas**
Field	a	*nwesa*	**idea cloud**	*nwesai*	**system of linguistic organization**	*nweswa*	**system of pre-linguistic thought**	*nweswai*	**system of language influence**
Particle	o	*nweso*	**idea**	*nwesoi*	**idea structure organized for a language**	*nweswo*	**collection of pre-organized ideas**	*nweswoi*	**language-based ideas**

	nwesu	Concept of ideas: concept, notion, thought	*nwesi*	linguistically organized ideas: the concept that ideas are organized into structures associated with language*	*nwesw*	pre-linguistic idea structure: the concept of relations between in neurological structure unaffected by language	*nweswi*	influenced by language: the notion that language influences ideas, as in the Whorf-Sapir Hypothesis
	nwese	thinking: activity of prefrontal coretex or equivalent structure	*nwesei*	organizing ideas: process of organizing ideas into a structure the can be expressed in a language	*nweswe*	gathering ideas: the process of assembling concepts from various parts of the brain	*nweswei*	using language to generate ideas: the process of developing ideas based on language elements or structure
	nwesa	idea cloud: ideas as they are considered abstractly; multidimensional; neural organization	*nwesai*	system of linguistic organization: the rules of systems of language-related structure of ideas	*nweswa*	system of pre-linguistic thought: the quality of thought before it is associated with language or linguistic structure	*nweswai*	system of language influence: the influence of language over people's ideas
	nweso	idea: a specific idea	*nwesoi*	idea structure organized for a language: a specific set of ideas organized for expression in a language	*nweswo*	collection of pre-organized ideas: ideas collected from various parts of the brain before being organized for expressing in language	*nweswoi*	language-based ideas: idea(s) influenced by or originating in language

16.5.2.2. *Discussion*

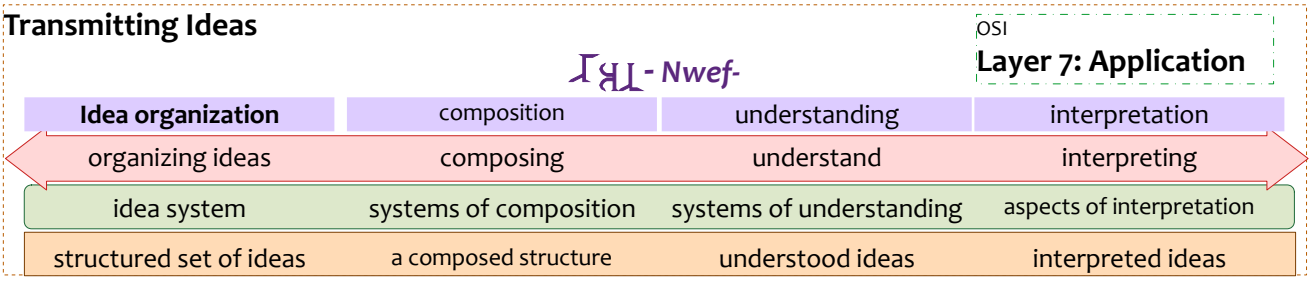
* *nwesi* 'organizing IDEAS' and *nwetei* 'composing' both refer to organizing IDEAS. *nwesi* is the more general, refering to any process of organizing ideas for any purpose. *nwetei* expresses the part of COMMUNICATION in which IDEAS are specifically brought together to form a MESSAGE.

16.5.3. Transmitting Ideas: *Nwef-*

ɾ𐤇𐤋- *Nwef-* overlaps somewhat with ɾ𐤇𐤋- *Nwes-* and ɾ𐤇𐤊- *Nwet-*. This is partly an oversight, but each species represents concepts or nuances the others do not, making it too great a challenge to completely eliminate once of the three. As of this writing (2024-10-20) the overlap has been allowed to remain. Major areas of overlap are discussed below (§16.5.4.2)

16.5.3.1. Vocabulary Dimensionality of This Species

- Core vowels
  - - : general
  - 𐤄 *e*: WAVE, action
  - 𐤃 *a*: FIELD, system
  - 𐤏 *o*: PARTICLE, instance
- Peripheral vowels
  - - : conceptual
  - 𐤉 *i*: composing
  - 𐤅-𐤉 *w-i*: interpreting
  - 𐤅 *w*: understanding



*Dp 16.8: **Transmitting Ideas** Species Organization*

16.5.3.2. Overlapping Terms

Overlap with Nwes- is mainly in the general representation of ideas and their organization:

- nwesu 'concept of ideas' (very general) ~ nwefa 'idea system' (ideas related by their similarity)
- nwefa 'idea system' (related ideas) ~ nwesa 'idea cloud' (multidimensional aspects of realted ideas)
- nwefe 'organizing ideas' (putting ideas in order) ~ nwese 'thinking' (more general idea handling)
- nwefi, nwefei, nwefai, nwefoi – words related to composing (organizing ideas for language use) ~ nwesi, nwesei, nwesai, nwesoi – words relationed to organizing ideas for language use: these are effectively synonyms.

*Dp 16.9: **Transmitting Ideas** vocabulary table with Notes*

	General		Composing		Understanding		Interpreting	
General u	*nwefu*	**Idea organization**	*nwefi*	**composition**	*nwefw*	**Understanding**	*nwefwi*	**interpretation**
Wave: e Dynamic	*nwefe*	**organizing ideas**	*nwefei*	**composing**	*nwefwe*	**understanding**	*nwefwei*	**interpreting**
Field: a System and Rules	*nwefa*	**idea systems**	*nwefai*	**systems of composition**	*nwefwa*	**systems of understanding**	*nwefwai*	**aspects of interpretation**
Particle: o Entities	*nwefo*	**structured set of ideas**	*nwefoi*	**a composed structure**	*nwefwo*	**understood ideas**	*nwefwoi*	**interpreted ideas**

	Notes							
	nwefu	Idea organization: the concept of organizing ideas	*nwefi*	composition: reorganization of a person's neural idea structure into a structure that can be expressed in a language	*nwefw*	Understanding: incorporating information received into the context of a person's overall knowledge structure	*nwefwi*	interpretation: reorganization the ideas from a received message into an individual's own neural idea structure
	nwefe	organizing ideas: the act of organizing ideas	*nwefei*	composing: the act of composing messages	*nwefwe*	understanding: the act or process of understanding	*nwefwei*	interpreting: the act of interpretation
	nwefa	idea systems: systems and rules of idea organization	*nwefai*	systems of composition: systems and rules of composition	*nwefwa*	systems of understanding: ways to achieve understanding	*nwefwai*	aspects of interpretation: rules and systems for interpretation of received messages
	nwefo	structured set of ideas: any way of organizing relationships between ideas	*nwefoi*	a composed structure: an organization structure for ideas adapted to a language	*nwefwo*	understood ideas: _	*nwefwoi*	interpreted ideas: ideas from a received message as organizerd into in individual's neural idea structure

16.5.3.3.

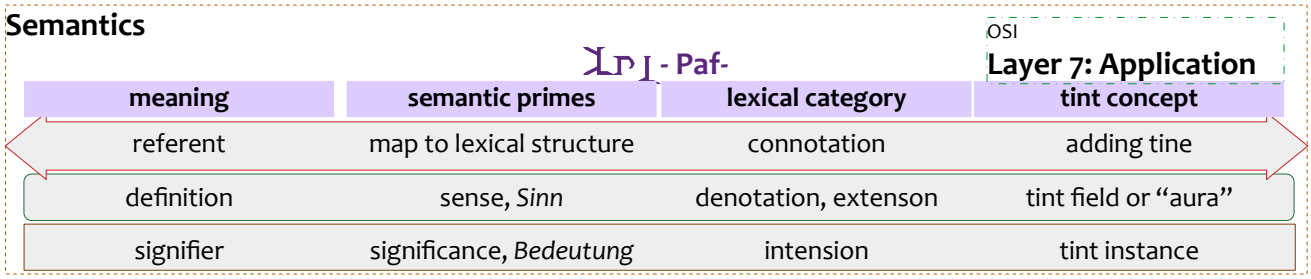
16.5.4. Semantics: *Paf-*

Semantics is **the relations between and among SYMBOLS and** IDEAS.

16.5.4.1. Vocabulary Dimensionality of This Species

SPECIES 𐤉𐤓𐤋 - P*af-* is quasi-dimensional:

- *-i* extends corresponding General concepts;
- *-w* contains technical terminology unrelated to final central vowel categories;
- *-w-i* contains terms relating to TINT;
- *-e -a -o* carry no particular significance.



*𐤃𐤐 16.10: **Semantics** Species Organization*

*Dp 16.11: **Semantics** vocabulary table with Notes*

	General		High-level concepts		Lexical semantics		Tint	
u	*pafu*	**Semantics**	*pafi*	**semantic prime**	*pafw*	**lexical category**	*pafwi*	**tint concept**
e	*pafe*	**referent**	*pafei*	**mapping rules to lexical structure**	*pafwe*	**connotation**	*pafwei*	**adding tint**
a	*pafa*	**definition**	*pafai*	**Sense, Sinn**	*pafwa*	**denotation, extension**	*pafwai*	**tint field or aura**
o	*pafo*	**signifier**	*pafoi*	**Significance, Bedeutung**	*pafwo*	**intension**	*pafwoi*	**tint instance**

Notes							
pafu	Semantics: the relations between and among symbols and ideas	*pafi*	semantic prime: basic, universal cognitive units, or 'primitives'; see https://en.wikipedia.org/wiki/Semantic_primes	*pafw*	lexical category: the type of concept signified by a word. There are multiple ways to categorize the totality of a lexicon; pafw refers to any of them.	*pafwi*	tint concept: tint is the content added to any part of a message by the participants themselves or any part of the messaging process. This includes stylistic aspects as well as channel-induced noise and other additions to the core content of a message.
pafe	referent: the actual thing or set of things envisioned in a concept refered to by a symbol (see Discussion)	*pafei*	mapping rules to lexical structure: how to get between concept and lexical item	*pafwe*	connotation: the meaning 'tint' added to a word by culture or usage; for example, English 'whatever' carries a pafwo (property) of resignation to the inevitable that is not included in the word's denotation	*pafwei*	adding tint: the action of adding tint to a message
pafa	definition: Systematic explanation of the sense(s) of symbols and how they are used in messages	*pafai*	Sense, Sinn: The concept refered to by a symbol in a particular message context - (see Discussion)	*pafwa*	denotation, extension: the pafa (lexical definition) of a word, stripped of any contextual significance or connotation	*pafwai*	tint field or aura: the sum of tints from different contributors to a message
pafo	signifier: something that refers to a concept	*pafoi*	Significance, Bedeutung: importance or 'impact' of a lexical item in a particular message context - see Discussion	*pafwo*	intension: any property or quality connoted by a word; the additional meanings that make up the pafwe (connotation)	*pafwoi*	tint instance: the tint added by a particular participant or aspect of message transmission

16.5.4.2. Discussion

16.5.4.2.1 Definition, Sense and Significance

𐤐𐤐𐤋𐤐 *pafa* 'Definition'; with 𐤐𐤐𐤋𐤃 *pafai* 'Sense' and 𐤐𐤐𐤋𐤅 *pafoi* 'Significance' (German *Sinn* and *Bedeutung*) clarify three ways in which meaning can be understood. Here is an example:
The English word "part" as a noun has nine lexical entries in the Merriam-Websters dictionary. Each entry represents one aspect of the overall concept of the word 'part'. 𐤐𐤐𐤋𐤐 *pafa* is used to represent the totality of this concept in all its aspects.
In the sentence, 'He did his part', the context suggests that the aspect of 'part' refered to is, "one's share or allotted task". This is the 𐤐𐤐𐤋𐤃 *pafai* , *sense*, or *Sinn*, the meaning in context.
In a different context, such as performing a drama, the sentence "You didn't know your part well enough" probably refers to the 𐤐𐤐𐤋𐤃 *pafai* 'sense', an actor's lines in a play, movie, etc.; but its 𐤐𐤐𐤋𐤅 *pafoi* (*significance* or *Bedeutung*) to the addressee is the command, "Learn your lines!"

16.5.4.2.2 Signifier, sense, and referent

Ferdinand de Saussure (1857–1913) contrasts three elements of meaning: *Signifier = symbol =* 𐤐𐤐𐤋𐤏 *pafo*: a language element (word, morpheme, character...) *Signified = concept = sense = Sinn =* 𐤐𐤐𐤋𐤃 *pafai*: The individual and collective mental ideal meaning. NN allows for the theory that all symbols refer directly only to concepts; for a real world entity or action to be discussed requires sentient perception, hence the formation of a concept. According to this theory, before something undergoes this process of conceptualization, it cannot be represented by a specific symbol.

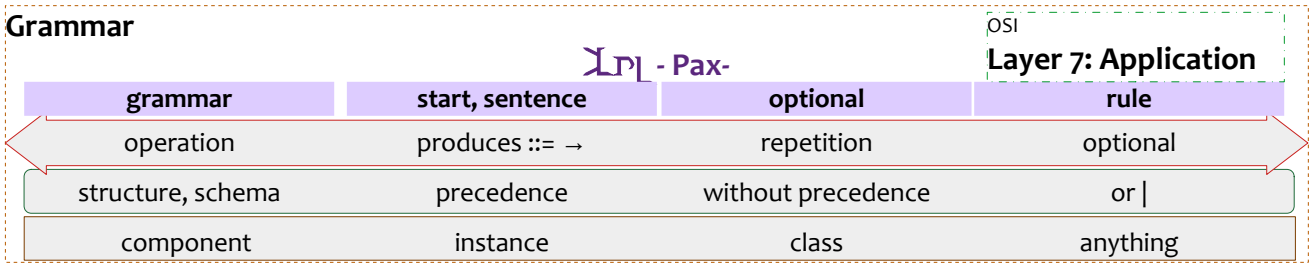
- *Referent = actual entity or action =* 𐤐𐤐𐤋𐤇 *pafe:* Exists in the real world in some way; abstractions and generalizations may or may not have existence on their own; this is a philosophical debate which for NN remains moot.

16.5.5. Grammar: *Pax-*

This species provides terminology for fundamental description of grammatical structures and operations. The goal is to make available general terminology which can be used for many (if not most) theoretical approaches to language structure analysis.

16.5.5.1. Vocabulary Dimensionality of This Species

Organization of 𐤉𐤓𐤋 - *Pax-* is **ordinal** rather than dimensional: the final vowels are not related to any semantic dimensions.



*𝔇𝔭 16.12: **Grammar** Species Organization*

*$\mathcal{D}_p$ 16.13: **Grammar** vocabulary table with Notes*

	i		w		w-i		
u	**paxu**	**Grammar**	**paxi**	**Start, root**	**paxw**	**Optional**	**paxwi**	**Rule**
e	**paxe**	**Operation**	**paxei**	**Produces ::= →**	**paxwe**	**Repetition**	**paxwei**	**and (required) ∧**
a	**paxa**	**Communication schema, structure**	**paxai**	**Precedence**	**paxwa**	**Without precedence**	**paxwai**	**Or (choice) ∨**
o	**paxo**	**Component**	**paxoi**	**Instance**	**paxwo**	**Class**	**paxwoi**	**Anything**

Notes							
paxu	Grammar: The study and observation of the rules of languages. Compare with Nwesa, the rules and components of any specific language.	paxi	Start, root: The starting point of a schema or structure describing a 'sentence' or similar simple intermediate language structure. Many linguistic systems use an inverted tree diagram to visualize a 'sentence'; Paxi is the root of such a tree.	paxwo	optional: a component or operation that may be used but is not required.	paxwi	rule: a pattern explaining how an operaton is applied to various components to produce a result that advances toward a message. (Rules and systems at various levels of language are expressed by Pahwa, Pahai, and Pahwai.)*
paxe	Operation: In describing rules of languages, an 'operation' is a process by which language components are manipulated to move from an idea toward a message	paxei	produces : an operation (Paxe) produces (Paxei) a result	paxwe	repetition: the same component or operation occurs more than once.	paxwei	and (required) ∧: a component or operation which must occur in order to result in a well-formed message in a given language

paxa Communication schema, structure: a framework or structural model of how a language combines its components to produce messages; for example, if 'Subject', 'Object', and 'Verb' are components under discussion, SOV, SVO etc. are possible structures or schemas.

paxai precedence: a series of operations or components sometimes have a specific order in which they must take place; those which precede are said to have Paxai 'precedence'.

paxwa without precedence: a series of operations or components that may occur in any order.

paxwai Or (choice) ∨: a location in a rule which offers two or more options to construct a well-formed message

paxo Component: the available language objects which can be combined at various levels to form messages. At the level of basic meanings the Paxo would correspond to 'morpheme', while at another level Paxo would correspond to 'Noun', 'Verb', 'Adjective', etc.

paxoi instance: an individual member of a class of components; Paxoi is a specific example of a type of Paxo.

paxwo class: a type of component consisting of one or (usually) more instances.

paxwoi Anything: a location in a rule at which an unlimited choice or components results in a well-formed message

16.5.5.2. Discussion

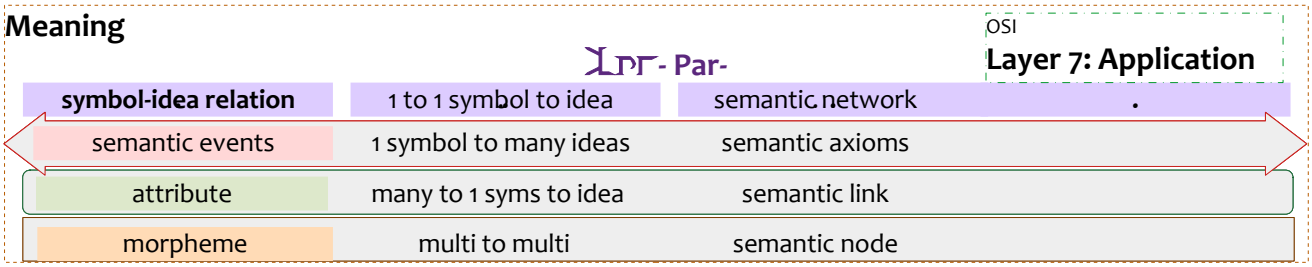
* 𐤉𐤓𐤋𐤖 *paxwi* and 𐤓𐤗𐤉𐤃 Nwetai both refer to grammatical RULES. 𐤓𐤗𐤉𐤓𐤋 *nwetai* is a RULE of IDEA organization, so more general, or applying more to "deep structure", such as IDEA sequencing (SVO, SOV, etc.). 𐤉𐤓𐤋𐤖 *paxwi* is a RULE applying to words of specific languages, such as those governing case endings or requiring particles or agrement in gender, number, or word category.

16.5.6. Meaning: *Par-*

Meaning (in this context) is the **relation between a symbol and the idea it is intended to convey**.

16.5.6.1. Vocabulary Dimensionality of This Species

Primarily ordinal, with final-vowel related to meaning only in the "symbol-idea relation" series, where the final vowel aligns with the WAVE-FIELD-PARTICLE meanings.



*Dp 16.14: **Meaning** Species Organization*

*𝘋ₚ 16.15: **Meaning** vocabulary table with Notes*

General	u	*paru*	**Meaning**	*pari*	**relations between lexemes**	*parw*	**semantic network**	*parwi*	(unassigned)
(Wave)	e	*pare*	**semantic events**	*parei*	**getting meaning from context**	*parwe*	**semantic link**	*parwei*	(unassigned)
(Field)	a	*para*	**attribute**	*parai*	**patterns of association**	*parwa*	**semantic triple**	*parwai*	(unassigned)
(Particle)	o	*paro*	**morpheme**	*paroi*	**meaning inherent in symbol**	*parwo*	**semantic node**	*parwoi*	(unassigned)

Notes							
	paru	Meaning: (in this context) is the relation between a symbol and the idea it is intended to convey	*pari*	relations between lexemes: The aspect of meaning that varies depending on the context in which a lexeme is used	*parw*	semantic network: a map of the relationships between meanings in a language (or selected portion of a language). See https://en.wikipedia.org/wiki/Semantic_network	*parwi*
	pare	semantic events: The act of conveying ideas through use of symbols	*parei*	getting meaning from context: Dynamic association between symbol and meaning because of the symbol's use in a given context	*parwe*	semantic link: a relationship between two semantic entities	*parwei* (unassigned): –
	para	attribute: here, an 'attribute' is an aspect of an idea conveyed by a symbol; ideas may have one of more attribute	**parai**	patterns of association: Symbols with related meaning form patterns which themselves influence the meanings of related words	**parwa**	semantic triple: two semantic entities and the link between them; triples form the basis of semantic networks	*parwai* (unassigned): –
	paro	morpheme: the smallest and simplest unit in a language that conveys an idea. Synonyms: Nwesoi, Nweko^		meaning inherent in symbol: Some symbols have meaning in and of themselves, or evoke associations in many receivers; one type of this is onomatopoeia, in which the sound of a spoken word is related to an object or action to which it refers		semantic node: a semantic entity	(unassigned): –

16.5.6.2. Discussion

^ The focus of 𞤊𞤢𞤪𞤮 *paro* is on its role as the basic unit of meaning; 𞤊𞤢𞤣𞤢𞤮𞤤 *pahoi* is any basic unit of language, without necessarily being tied to meaning; the focus of 𞤊𞤢𞤧𞤮 *paso* is on its role as an entry in a lexicon. The

focus of 𐤉𐤓𐤓𐤓 *paro* is on the basic nature of its meaningful unit, while that of 𐤉𐤓𐤔𐤓 *paso* is on a unit's role as member of a lexicon. 𐤉𐤓𐤉𐤓𐤍 *pahoi* is both more general and more fundamental.

Semantic Network, also known as a 'knowlege network'[24], 𐤉𐤓𐤉𐤅 *pafwi.* It is a directed or undirected graph consisting of vertices 𐤉𐤓𐤉𐤅𐤏 *pafwoi*, which represent ideas, and edges 𐤉𐤓𐤉𐤅𐤄 *pafwei*, which represent semantic relations between ideas, mapping or connecting semantic fields based on semantic features 𐤉𐤓𐤉𐤅𐤀 *pafwai* common to one or more symbols.
The series of words ending with 𐤅-𐤍 *w-i* is unassigned as of this writing (2024-09-20). It is not clear how this series can be used for 'Meaning', so for now it is unassigned.

24 Semantic network: See https://en.wikipedia.org/wiki/Semantic_network

16.6. NN Species Details for OSI Layer 6

NN allocates 6 SPECIES of words for OSI Layer 6 ideas:

- 𐑇𐑢𐑧- *Nwey-* 'Meaning'
- 𐑇𐑢𐑩- *Nwen-* 'Semiotics'
- 𐑇𐑢𐑧- *Nwem-* 'Encoding'
- 𐑔𐑭𐑗- *Pas-* 'Lexical symbolism'
- 𐑇𐑢𐑒- *Nwec-* 'Message (1)
- 𐑇𐑢𐑑- *Nwet-* 'Message (2)

The two SPECIES allocated for ENCODING approach the topic from somewhat different perspectives, but there is some overlap. Please see Discussion (§16.) for clarification.

ENCODING is the process by which IDEAS are assigned to SYMBOLS. This is what takes place in OSI Layer 6. Owing to the complexity of SYMBOL systems and the variety of COMMUNICATIONS CHANNELS by which a MESSAGE can be sent, three SPECIES are made available for expressing ENCODING-related terms: 𐑇𐑢𐑩-*Nwen-* and 𐑇𐑪𐑢𐑧-*Nwem-* for general encoding terms, and 𐑔𐑭𐑗- *Pas-* for expressing ENCODING at the lexical level.

ENCODING can can occur at several levels of language (basic, intermediate, complete), so the assignment to OSI Level 6 may be somewhat misleading.

In addition, coding or recoding can occur when MESSAGES pass through multiple CHANNELS. For example, reading a written MESSAGE aloud recodes from a written CHANNEL'S symbol-system to a spoken CHANNEL'S symbol-system. If the sound is digitized, as for an audio-book, the MESSAGE is recoded through several CHANNELS, each with its own symbol system, before reaching a final intended RECIPIENTS.

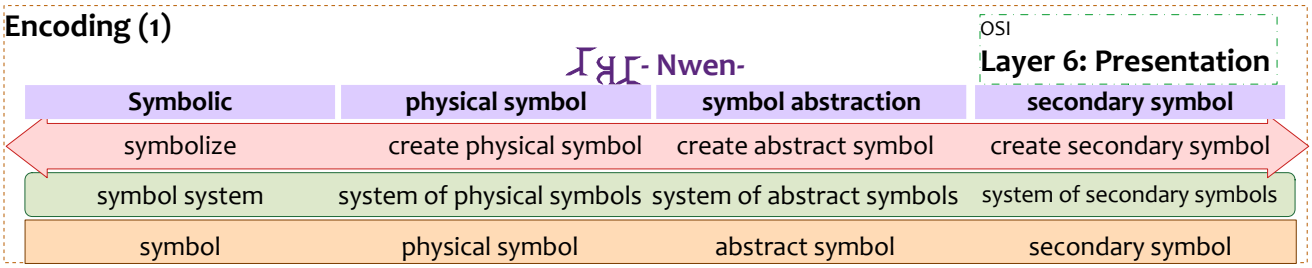
16.6.1. Semiotics: *Nwen-*

SEMIOTICCS IS "THE SYSTEMATIC STUDY OF SIGN PROCESSES AND THE COMMUNICATION OF MEANING" (WIKIPEDIA, "SEMIOTICS"). IN THIS SPECIES, NN PROVIDES VOCABULARY FOR DISCUSSING SIGNS, SYMBOLS, AND THEIR ASSOCIATION WITH MEANINGS.

16.6.1.1. Vocabulary Dimensionality of This Species

- Core vowels
  - 𐑧 *e*: WAVE, action
  - 𐑭 *a*: FIELD, system
  - 𐑪 *o*: PARTICLE, entity
- Peripheral vowels
  - 𐑦 *i*: physical

- ᓀ–ᒪ *w-i*: secondary – a symbol representing another symbol
- ᓀ *w*: abstract



*Dp 16.16: **Semiotics** Species Organization*

*Dp 16.17: **Semiotics** vocabulary table with Notes*

		General		Physical		Abstract		Secondary	
General	u	***nwenu***	**encoded, symbolic**	***nweni***	**physical symbolism**	***nwenw***	**symbol abstraction**	***nwenwi***	**secondary symbolism**
wave	e	***nwene***	**encode, symbolize**	***nwenei***	**create physical symbol**	***nwenwe***	**use or create abstract symbol**	***nwenwei***	**create secondary symbol**
field	a	***nwena***	**symbol system**	***nwenai***	**system of physical symbols**	***nwenwa***	**system of abstract symbols**	***nwenwai***	**system of secondary symbols**
particle	o	***nweno***	**symbol**	***nwenoi***	**physical symbol**	***nwenwo***	**abstract symbol**	***nwenwoi***	**secondary symbol**

Notes							
			Physical: a realization of an abstract symbol (cf. *suci*)		**Absctract: the 'ideal' or conceptual form underlying all instances of a particular symbol** (cf. *sucw*)		**Secondary: a symbol which represents another symbol**
	nwenu	encoded, symbolic: The result of applying a symbol to represent something else	***nweni***	physical symbolism: a realization of the abstract symbol; an instance of a symbol. For example, a character written on paper; a word spoken by a person	***nwenw***	symbol abstraction: the underlying concept of what a symbol should be, such as the abstract shape of a written character, or the generalized sound of a spoken phoneme	***nwenwi***	secondary symbolism: Often in the process of communication, symbols are represented by other symbols^
	nwene	encode, symbolize: Communicating symbolically in general	***nwenei***	create physical symbol: the act of using a symbol to communicate; for example, writing a character or speaking a word	***nwenwe***	use or create abstract symbol: creating or defining an idealized symbol	***nwenwei***	create secondary symbol: assigning one symbol to represent another
	nwena	symbol system: General idea of systems of symbols	***nwenai***	system of physical symbols: the set of physical symbols in a communication system together with the rules for associating them with concepts in that system*	***nwenwa***	system of abstract symbols: A systematic template for assigning abstract symbols to something else ~	***nwenwai***	system of secondary symbols: a way of representing one set of symbols with another; for example, for digital storage of text, such as ASCII, EBCDIC, or Unicode
	nweno	symbol: Concept of symbol(s); the most general word for symbol	***nwenoi***	physical symbol: an example of a symbol being used	***nwenwo***	abstract symbol: the underlying concept of a particular symbol	***nwenwoi***	secondary symbol: for example, the number 66 representing latin capital letter B in the Unicode system

16.6.1.2. Discussion

* System of physical symbols: for example, the letters of the latin alphabet (with possible variations) and the rules for pronouncing them in a specific language.

^ for example, in written text transmitted by digital means, the Unicode system is often used for representing characters, where the symbol A (latin capital letter A) is represented by the decimal number 65.

~ The following description of map-making symbols is an example of an abstract system's relation to physical symbols:

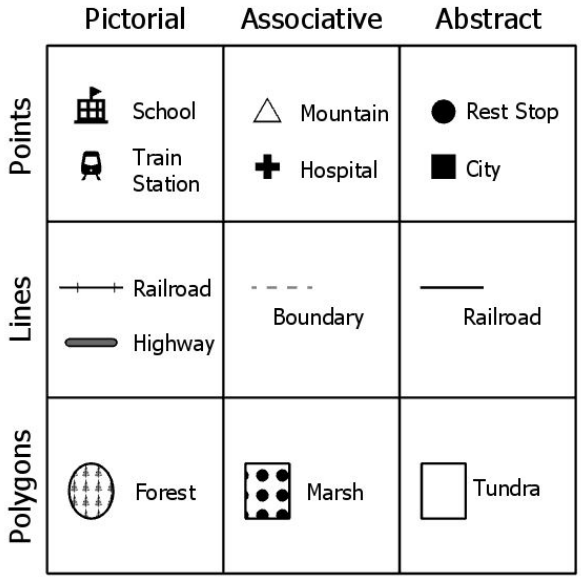
Pictorial symbols (also "image", "iconic", or "replicative") appear as the real-world feature, although it is often in a generalized manner; e.g. a tree icon to represent a forest, or green denoting vegetation.

Functional symbols (also "representational") directly represent the activity that takes place at the represented feature; e.g. a picture of a skier to represent a ski resort or a tent to represent a campground.

Conceptual symbols directly represent a concept related to the represented feature; e.g. a dollar sign to represent an ATM, or a Star of David to represent a Jewish synagogue.

Conventional symbols (also "associative") do not have any intuitive relationship but are so commonly used that map readers eventually learn to recognize them; e.g. a red line to represent a highway or a cross to represent a hospital.

Abstract/geometric symbols (also "adhoc") are arbitrary shapes chosen by the cartographer to represent a certain feature.



Dp 16.18: Cartographic symbols

16.6.1.3.

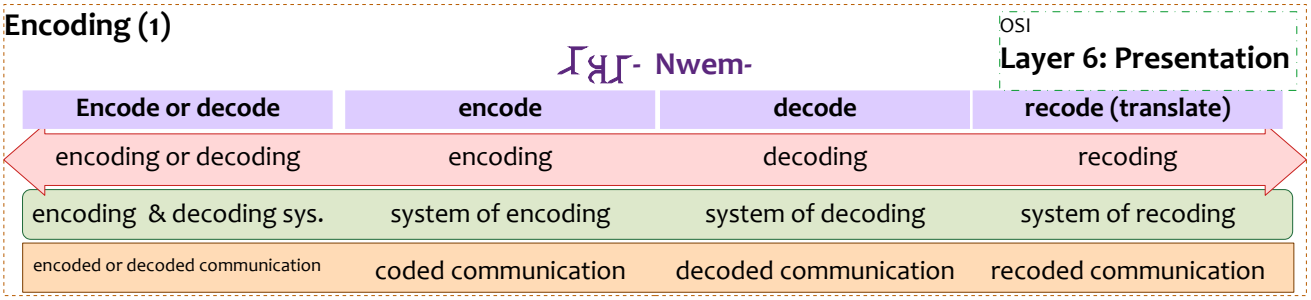
16.6.1.4.

16.6.2. Encoding: *Nwem-*

While ɾɥɾ- *Nwen-* represents types and aspects of ENCODING, the focus of ɾɥɾ- *Nwem-* is on the process of ENCODING a message.

16.6.2.1. Vocabulary Dimensionality of This Species

- Core vowels
  - ᵻ *e*: WAVE, action
  - ᵽ *a*: FIELD, system
  - ᵴ *o*: PARTICLE, entity
- Peripheral vowels
  - ᵾ *i*: encode
  - ᵿ *w-i*: translate (translate)
  - ᵿ *w*: decode



*Dᵨ 16.19: **Semiotics** Species Organization*

*Dp 16.20: **Encoding** vocabulary table with Notes*

		General		Positive: encoding		Negative: decoding		Complex: translating	
General	u	*nwemu*	**symbolic relationship**	*nwemi*	**encode**	*nwemw*	**decode**	*nwemwi*	**recode (translate)**
Wave	e	*nweme*	**encoding or decoding**	*nwemei*	**encoding**	*nwemwe*	**decoding**	*nwemwei*	**recoding**
Field	a	*nwema*	**system of encoding and decoding**	*nwemai*	**system of encoding**	*nwemwa*	**system of decoding**	*nwemwai*	**system of recoding**
Particle	o	*nwemo*	**encoded or decoded communication**	*nwemoi*	**coded communication**	*nwemwo*	**decoded communication**	*nwemwoi*	**recoded communication**

		Notes						
	nwemu	symbolic relationship: relation between symbols (Nweno) and concepts (Nwayo)	*nwemi*	encode: relation of concept → symbol	*nwemw*	decode: relation of symbol → concept	*nwemwi*	recode (translate): relation of symbol → symbol
	nweme	encoding or decoding: changing between symbols and concepts	*nwemei*	encoding: assigning a concept to a symbol	*nwemwe*	decoding: assigning a symbol to a concept	*nwemwei*	recoding: assigning different symbol(s) to replace a symbol originally assigned to a concept
	nwema	system of encoding and decoding: sets of symbols and rules for relating concepts to or from them	*nwemai*	system of encoding: system of assigning concepts to symbols in a given set	*nwemwa*	system of decoding: system of assigning symbols of a given set to concepts	*nwemwai*	system of recoding: system for transforming symbols of one set to symbols of another set
	nwemo	encoded or decoded communication: a message at the stage of being encoded or decoded	*nwemoi*	coded communication: a message at a stage in which it is represented by symbols	*nwemwo*	decoded communication: a message at a stage in which its symbols are re-assigned to meanings	*nwemwoi*	recoded communication: a message that has been recoded in other than the symbols in which it was originally coded

16.6.2.2. Discussion

ENCODING is the process by which IDEAS are assigned to SYMBOLS. This is what takes place in OSI Layer 6. Owing to the complexity of SYMBOL systems and the variety of COMMUNICATIONS CHANNELS by which a MESSAGE can be sent, three SPECIES are made available for expressing ENCODING-related terms: ɾɥɾ- *Nwen-* and ɾɥɾ- *Nwem-* for general ENCODING terms, and ʖɒɻ- *Pas-* for expressing ENCODING at the lexical level.

ENCODING can can occur at several levels of language (basic, intermediate, complete), so the assignment to OSI Level 6 may be somewhat misleading.

In addition, CODING or RECODING can occur when messages pass through multiple CHANNELS. For example, reading a written message aloud RECODES from a written CHANNEL'S SYMBOL-system to a spoken CHANNEL'S

SYMBOL-system. If this is recorded, as for an audio-book, the MESSAGE RECODED through several channels, each with its own SYMBOL system, before reaching a final intended RECIPIENT.

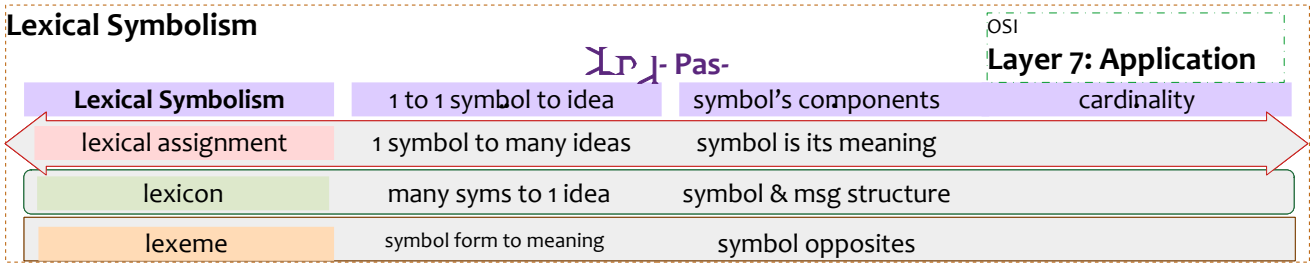
16.6.3. Lexical Symbolism: *Pas-*

The 'lexical' level refers to units of communication that have one of more specific meaning or functional role; often called 'words' or 'morphemes'. This species provides terms for describing the relationship between symbols and meanings at the lexical level.

The SPECIES organization is partially dimensional, with final core vowels representing WAVE, FIELD, and PARTICLE only in the first series (depicted with colored backgrounds in 𐤃𐤒 16.22). However, six important terms could not be fit in with a dimensional structure, and are shown with a gray background.

16.6.3.1. Vocabulary Dimensionality of This Species

- Core vowels meaningful only in the first series (those with no peripheral vowels)
  - 𐤄 *e*: WAVE, action
  - 𐤓 *a*: FIELD, collection
  - 𐤑 *o*: PARTICLE, item
- Peripheral vowels
  - 𐤉 *i*: meanings acquired through association
  - 𐤅-𐤉 *w-i*: unstructure
  - 𐤅 *w*: incomplete series



*𐤃𐤒 16.22: **Lexical Symbolism** Species Organization*

*Dp 16.23: **Lexical Symbolism** vocabulary table with Notes*

		General		Associational meaning		(unstructured)		General	
General	u	***pas u***	**lexical symbolism**	***pasi***	**one symbol to one idea**	***pasw***	**components of symbol**	***paswi***	**cardinality**
Wave	e	***pase***	**lexical assignment**	***pasei***	**one symbol to multiple ideas**	***paswe***	**meaning inherent in symbol**	*paswei*	(unassigned)
Field	a	***pasa***	**lexicon**	***pasai***	**multiple symbols to one idea**	***paswa***	**symbol relations with message structure**	*paswai*	(unassigned)
Particle	o	***pas o***	**lexeme**	***pasoi***	**relating symbol form to meaning**	***paswo***	**antonym**	*paswoi*	(unassigned)

Notes

pas u	lexical symbolism: Assignment of meaning* to a communication symbol within a given system	***pasi***	one symbol to one idea: monoseme	***pasw***	components of symbol: Attributes of a symbol, such as its written components (letters or strokes), or its sound (acoustic signature or articulatory production)	***paswi***	cardinality: the number of ideas assigned to one symbol; pasi, pasei, pasai, pasoi represent types of cardinality
pase	lexeme: A symbol with at least one assigned meaning or function in the lexicon (Pasa) of a language; the fundamental unit of meaning in a communication system; 'morpheme'. Synonym: Nweyo^	***pasei***	one symbol to multiple ideas: polyseme, homonym	***paswe***	meaning inherent in symbol: symbols based on mimicry, such as pictographs and onomatopeic sounds ~	*paswei*	
pasa	lexicon: Compendium of symbol-meaning assignments within a given system	***pasai***	multiple symbols to one idea: synonym	***paswa***	symbol relations with message structure: How a lexeme can be used within grammatical structures of a language; 'part of speech' such as noun, verb, adjective, etc.	*paswai*	
pas o	lexical assignment: Assigning meaning to a symbol; listing the assigned meaning or function of a particular symbol within a given system; defining a word or morpheme	***pasoi***	multiple symbols to multiple ideas: many-to-many	***paswo***	antonym: Lexeme with the opposite meaning ('good' vs. 'bad', etc.)	*paswoi*	

16.6.3.2. Discussion

*'Meaning' (in this context) is the relation between a symbol and the idea it is intended to convey.

^ The focus of 𐑜𐑢𐑧𐑬 *nweyo* is on its role as the basic unit of MEANING; the focus of 𐑐𐑭𐑕𐑬 *paso* is on its role as an entry in a lexicon. In most respects, these two words refer to the same basic unit of COMMUNICATION.

~ Refer to 𝔇ρ 16.18 and associated discussion for for further illustration of SYMBOLS deriving forms from their MEANING.

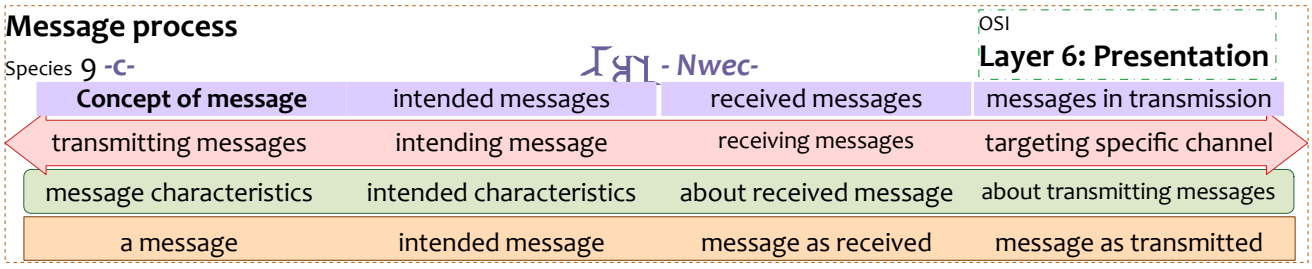
16.6.4. Message Process: *Nwec-*

This SPECIES represents the stages through which MESSAGES progress as they make their way from a SENDER through a CHANNEL to a RECIPIENT. Species ɾɥɾ- *Nwem-* represents similar ideas, focusing on the actions, systems and concepts of MESSAGES.

ɾɥɻ- *Nwec-* provides four ways to represent MESSAGES: as intended, as sent, as received, and in general regardless of differences at various stages.

16.6.4.1. Vocabulary Dimensionality of This Species

- Core vowels
  - – : concepts
  - ᵈ *e*: WAVE, actions
  - ᵖ *a*: FIELD, characteristics
  - ᵨ *o*: PARTICLE, items
- Peripheral vowels
  - –: Concept of MESSAGES
  - ᶩ *i*: MESSAGE as intended
  - ᵚ–ᶩ *w-i*: MESSAGE as transmitted
  - ᵚ *w*: MESSAGE as received by RECIPIENTS



*Dp 16.24: **Message Process** Species Organization*

*Dp 16.25: **Message Process** vocabulary table with Notes*

		Transmitting Messages		Sender Intention		Recipient		Channel	
General	u	*nwecu*	**Concept of messages**	*nweci*	**messages as intended by sender**	*nwecw*	**messages as received**	*nwecwi*	**messages as transmitted**
Wave	e	*nwece*	**transmitting messages**	*nwecei*	**intending a message**	*nwecwe*	**receive a message**	*nwecwei*	**transmit a message**
Field	a	*nweca*	**message characteristics**	*nwecai*	**characteristics of message as intended**	*nwecwa*	**characteristics of message as received**	*nwecwai*	**characteristics of transmitting messages**
Particle	o	*nweco*	**a message**	*nweco i*	**a message as intended by sender**	*nwecwo*	**a message as received by recipient**	*nwecwoi*	**a message as transmitted**

Notes							
nwecu	Concept of messages: Message in the most general sense	*nweci*	messages as intended by sender: message before sender imperfections, blunders, and channel effects	*nwecw*	messages as received: message after channel effects, which include noise, damage, distortion, (partial) loss, and added TINTS	*nwecwi*	messages as transmitted: messages during transmission
nwece	transmitting messages: The act of sending messages	*nwecei*	intending a message: the act of intending to send a particular message	*nwecwe*	receive a message: the act of message receiption	*nwecwei*	transmit a message: act of transmissing a message
nweca	message characteristics: aspects of messages as actually sent	*nwecai*	characteristics of message as intended: about message as intended	*nwecwa*	characteristics of message as received: about received message	*nwecwai*	characteristics of transmitting messages: about transmitting message
nweco	a message: a specific message	*nweco i*	a message as intended by sender: a specific message a sender wanted to send, before mistakes and channel effects	*nwecwo*	a message as received by recipient: specific message after channel effects	*nwecwoi*	a message as transmitted: a message in transmission

16.6.4.2. Discussion

nwecu represents MESSAGES in general, and *nweco* represents a specific MESSAGE or MESSAGES. Words of this SPECIES with -*i* represent the intention of the SENDER. At several points in the process, from COMPOSING through TRANSMITTING and RECEIVING, the SENDER'S intentions can easily be misrepresented, either through imperfect COMPOSITION, clumsy speech and writing, or CHANNEL issues. *nwecwi* and words ending with *w-i* represent what was actually TRANSMITTED, and those ending with *w-* represent the MESSAGE as it finally arrives at the RECIPIENT.

16.6.5. Message Structure: *Nwet-*

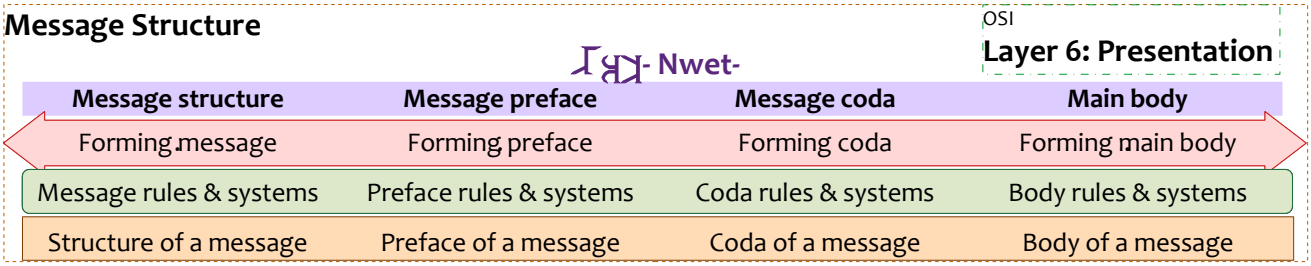
This SPECIES represents structure and process basics of MESSAGES. Each CHANNEL through which a MESSAGE passes may have its own specific rules for MESSAGE construction. A simple example is spoken language: as a person speaks, they may (consciously or unconsciously) put groups of words together into phrases that can be spoken on one breath, thus limiting the length of phrases in a way that is unnecessary in writing. Another example is the set of rules governing the structure of data packets of various kinds in electronic CHANNELS: TCP, UPD, ethernet and many others.

Another example: if an important person is injured in an incident, statements about their physical condition could be made by trained medical personnel, police officers, and journalists. Although the same RULES of GRAMMAR govern each of these statements, an additional set of RULES (formal or de facto) determine the structure and vocabulary of each type of report, with the result that the three reports of the same incident would be very different. This SPECIES provides vocabulary to discuss such RULES and guidelines, as distinct from the RULES and vocabulary of the language in general.

MESSAGE structure is parallel in many respects to SESSION structure, *Nwep-* (§16.7.1).

16.6.5.1. Vocabulary Dimensionality of This Species

- Core vowels
  - *u*: general concepts
  - *e*: WAVE, action, verb
  - *a*: FIELD, rules
  - *o*: PARTICLE, item
- Peripheral vowels
  - *i*: message preface
  - *w-i*: main message body
  - *w*: massage coda



*Dp 16.26: **Message Structure** Species Organization*

*Dp 16.27: **Message Structure** vocabulary table with Note*

		General		Starting		Ending		Internal	
General	u	*nwetu*	**Message structure**	*nweti*	**message preface**	*nwetw*	**message coda**	*nwetwi*	**main body of messages**
Wave	e	*nwete*	**forming a message**	*nwetei*	**forming message preface**	*nwetwe*	**forming message coda**	*nwetwei*	**forming message body**
Field	a	*nweta*	**message rules and systems**	*nwetai*	**rules and systems for message preface**	*nwetwa*	**rules and systems for message ending**	*nwetwai*	**rules and systems for message body**
Particle	o	*nweto*	**structure of a message**	*nwetoi*	**preface of a message**	*nwetwo*	**coda of a message**	*nwetwoi*	**body of a message**

Notes							
nwetu	Message structure: Structure of a message as opposed to that of a sentence or session	*nweti*	message preface: the first of NN's 3 predefined message parts, often providing meta-information*	*nwetw*	message coda: the last of NN's 3 predefined message parts; some sort of confirmation that a message is complete^	*nwetwi*	main body of messages: this is the part of the message that conveys information; in speech and writing, it is that part made up of words; depending on the channel, the preface and coda may be merged into the main body, as with intonation patterns in spoken messages.
nwete	forming a message: the act of putting together symbols according to message structure rules						
nweta	message rules and systems: rules or guidelines for structuring messages in a particular channel or for a particular situation.						
nweto	structure of a message: the structure of a particular message						

16.6.5.2. Discussion

For convenience NN divides MESSAGES into Preface, Body, and Coda, but of course CHANNELS or situations may subdivide these or specify different structures.

* MESSAGE preface depends on the CHANNEL and situation. In speech, it may be a "hesitation noise", throat-clearing, or other way of bidding for attention; in electronic communication it may be the address of the recipient device and information about packet type; in writing it may be a capital letter or other indication of a new MESSAGE.

^ MESSAGE coda examples: in speech, falling intonation and/or drawing breath is often an indication that a sentence has reached its end; in writing, a period or other punctuation mark is required in connected discourse. Electronic communication systems have specific requirements for ending messages.

16.7. NN Species Details for OSI Layers 5-4-3-2-1

OSI Layers from 5 to 1 are known as "media layers". They are the Session, Transport, Network, Data Link, and Physical layers.

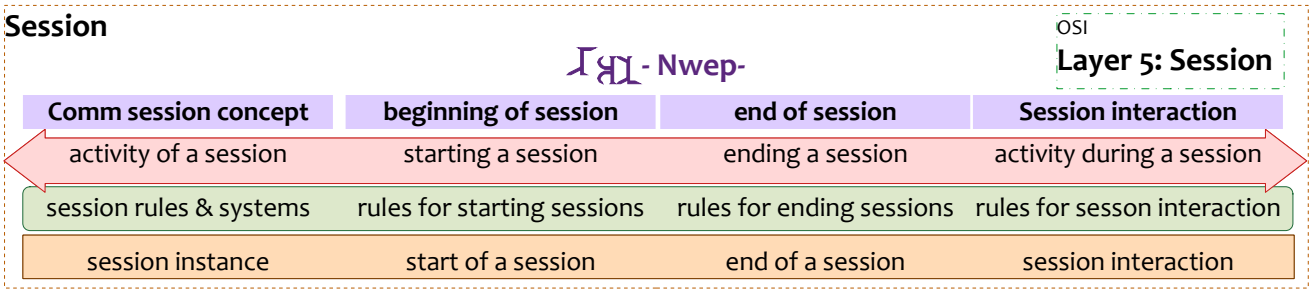
16.7.1. Session: *Nwep-*

OSI Layer 5 is known as the **Session Layer**. This refers to the practice in data communication of establishing and keeping track of communications between two entities during the course of a "session", the purpose of which is to insure that messages are sent and received in the intended context and order.
In more general communication, a session is a consistent flow of messaging between one or more SENDERS and one or more RECIPIENTS.

This can take many forms depending on the channel. For example, In spoken communication, a session might be a conversation, a lecture, or an announcement. In written communication, a session could be a letter, a thread in email or social media, a memo, an article, or a book.

16.7.1.1. Vocabulary Dimensionality of This Species

- Core vowels
  - ɪ *u*: general concepts
  - ᑭ *e*: WAVE, activity
  - ᑎ *a*: FIELD, rules and systems
  - ᑭᑭ *o*: PARTICLE, item
- Peripheral vowels
  - ᒐ *i*: starting
  - ᓇ–ᒐ *w-i*: ending
  - ᓇ *w*: continuing



*Dp 16.28: **Session** Species Organization*

*Dₚ 16.29: **Session** vocabulary table with Notes*

General	u	***nwepu***	**communication session concept**	***nwepi***	**session beginning**	***nwepw***	**sesson ending**	***nwepwi***	**session interaction**
Wave	e	***nwepe***	**activity of a session**	***nwepei***	**starting a session**	***nwepwe***	**ending a session**	***nwepwei***	**activity during a session**
Field	a	***nwepa***	**session rules & systems**	***nwepai***	**rules for starting a session**	***nwepwa***	**rules for ending a session**	***nwepwai***	**rules for session interaction**
Particle	o	***nwepo***	**a session**	***nwepoi***	**start of a session**	***nwepwo***	**end of a session**	***nwepwoi***	**session interaction**

Notes								
	nwepu	communication session concept: (see discussion above)	***nwepi***	session beginning: concept of session starting	***nwepw***	sesson ending: Concept of ending a session	***nwepwi***	session interaction: Continuation and back-and-forth (if any) between participants within a session
	nwepe	activity of a session: initiating, maintaining, and ending a session	***nwepei***	starting a session: Act of starting a session	***nwepwe***	ending a session: Act of ending a session	***nwepwei***	activity during a session
	nwepa	session rules & systems: Highly dependent on the channel, language, and culture in which the session takes place	***nwepai***	rules for starting a session	***nwepwa***	rules for ending a session	***nwepwai***	rules for session interaction
	nwepo	a session: (as described above)	***nwepoi***	start of a session	***nwepwo***	end of a session	***nwepwoi***	session interaction

16.7.2. Externalization: *Nweg-*

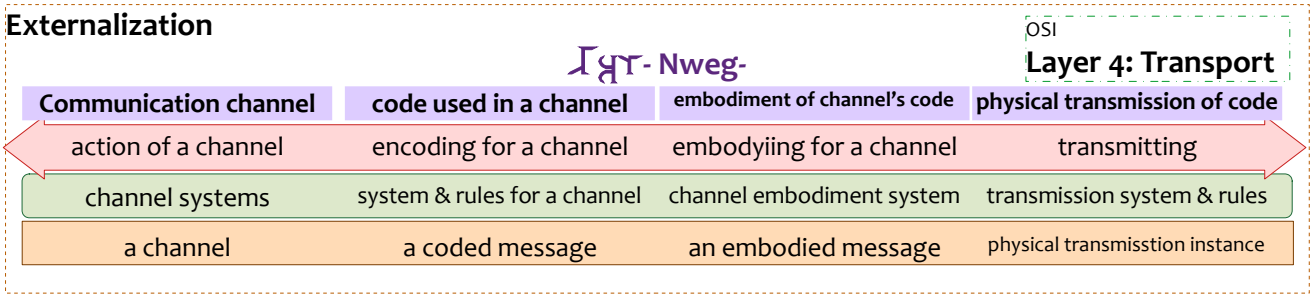
"Externalization" refers to the processes by which a MESSAGE is brought out of the mind of the SENDER and into a physical medium. NN refers to specific communications media as CHANNELS.

16.7.2.1.1 Communication CHANNELS

This is the physical medium through which communications pass between SENDER and RECIPIENT.
However, the CHANNEL is not only physical, but includes extensive and complex rules governing how messages are structured and transmitted within the medium.
In the Nwehu Nuswei communication model, the concept of CHANNEL spans OSI Layers 3, 2, and 1 (Network, Data Link, and Physical Layers).

16.7.2.2. Vocabulary Dimensionality of This Species

- Core vowels
  - ᓀ *e*: WAVE, action
  - ᓂ *a*: FIELD, systems and rules
  - ᓄ *o*: PARTICLE, items
- Peripheral vowels
  - ᓗ *u*: General concepts
  - ᓚ *i*: Step 1: Code for the channel
  - ᓓ–ᓚ *w-i*: Produce physical representation of the code (embody)
  - ᓓ *w*: Transmit the embodied code



*ᗤᑭ 16.30: **Externalization** Species Organization*

*Dp 16.31: **Externalization** vocabulary table with Notes*

		General		Code		Physical		Code-to-Physical	
General	u	*nwegu*	**Communication channel**	*nwegi*	**Code used in a channel**	*nwegw*	**Physical transmission of code**	*nwegwi*	**Embodiment of channel's code**
Wave	e	*nwege*	**action of a channel**	*nwegei*	**encoding**	*nwegwe*	**transmitting**	*nwegwei*	**embodying**
Field	a	*nwega*	**channel systems**	*nwegai*	**Channel encoding system**	*nwegwa*	**Channel transmission system**	*nwegwai*	**Channel embodying system**
Particle	o	*nwego*	**channel**	*nwegoi*	**a coded message**	*nwegwo*	**physical transmission**	*nwegwoi*	**an embodied message**

Notes							
nwegu	Communication channel as a concept: an important aspect of communication; the path, medium, and system for conveying a message from sender to receiver.	*nwegi*	Each channel has its own code, a set of conceptual symbols that abstractly represent the physical signals that are actually transmitted; examples include speech (phonemes), writing (letters and spelling systems), computer (UNICODE, EBCDIC)...	*nwegw*	Physical transmission is channel-dependent; examples include speech (acoustic), writing (visible contrasts on a flat surface), sign-language (motion of body parts), electronic (radio, magnetic, voltage pulses, light pulses) …	*nwegwi*	Each channel's conceptual code (phonemes, letters, computer codes…) must be transformed into physical entities – they must be "embodied". Phonemes must be produced as vibrations in the articulatory process; letters must be formed by hand-movements (or other methods)…
nwege	Action: one of the three primary actions (encoding, embodying, transmitting) or secondary actions (adding and losing information)	*nwegei*	The first step in transmitting a message through a channel is to translate the code of the previous level or channel into a code suitable for the particular channel.	*nwegwe*	The third step is actually sending the physical entities toward the reciever. Speech must be spoken so the recipient can hear (using voice, telephone, etc); writing must be sent by mail, printed in books, or sent by further electronic channels...	*nwegwei*	The second step in using a channel is to "embody" the code – that is, to convert the symbolic code into the appropriate physical entities that represent the symbols in that particular channel.
nwega	Channel systems tend to vary a great deal between types of channels, but are all complex.	*nwegai*	Encoding is done using a set of channel symbols according to a set of channel rules	*nwegwa*	The physical mechanism for transmission: vibrating air for speech; pencil and paper for writing; electricity and wires for electronic messaging…	*nwegwai*	Embodying systems convert the conceptual symbols into physical entities representing these symbols

nwego	A channel as an entity	***nwegoi***	A message that has been coded for a channel is not physical; it is ready to be embodied in that channel.	***nwegwo***	The vibrations of speech, shapes of written letters, pulses of electricity…	***nwegwoi***	The physical signals that are transmitted to convey a message

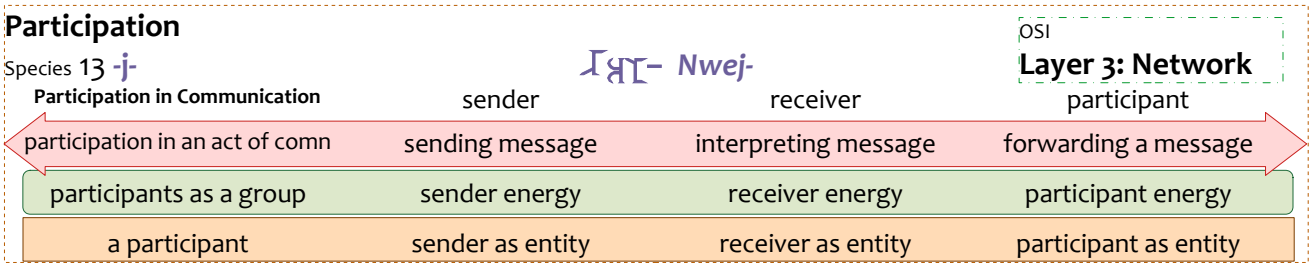
16.7.3. Participation: *Nwej-*

Nwehu Nuswei models communication conceptually using three possible classes of PARTICIPANTS:

- **SENDER:** the originator of COMMUNICATION or of a specific MESSAGE within a SESSION; though usually there is one SENDER, it is possible for groups to be the SENDER.
- **RECIPIENT:** the intended audience of a COMMUNICATION; often multiple RECIPIENTS are intended.
- **PARTICIPANT:** any entity that takes part in a COMMUNICATION; the CHANNEL may or may not be considered a PARTICIPANT, according to theoretical preferences; a translator may be one type of PARTICIPANT.

16.7.3.1. Vocabulary Dimensionality of This Species

- Core vowels
  - ᓀ *e*: WAVE, action
  - ᓇ *a*: FIELD, energy
  - ᓅ *o*: PARTICLE, PARTICIPANT
- Peripheral vowels
  - ᐞ *u*: general principles
  - ᒐ *i*: SENDER
  - ᓐ–ᒐ *w-i*: PARTICIPANT
  - ᓐ *w*: RECIPIENT



*Dp 16.32: **Participation** Species Organization*

*Dp 16.33: **Participation** vocabulary table with Notes*

General	u	***nweju***	**Participation in Communication**	***nweji***	**Sender**	***nwejw***	**Receiver**	***nwejwi***	**Participant**
Wave	e	***nweje***	**Participation in an act of communication**	***nwejei***	**Sending**	***nwejwe***	**Receiving**	***nwejwei***	**Forwarding a message**
Field	a	***nweja***	**Communication energy**	***nwejai***	**Sender-energy**	***nwejwa***	**Receiver energy**	***nwejwai***	**Participant energy**
Particle	o	***nwejo***	**Any participant**	***nwejoi***	**Sender**	***nwejwo***	**Receiver**	***nwejwoi***	**Participant**

Notes								
nweju	Communication requires multiple participants	***nweji***	Sender: the originator of an act of communication, as an abstract concept	***nwejw***	Receiver: one or more entities, as an abstract concept, that receive a message (intentionally or otherwise)	***nwejwi***	Participant: in many or most cases, a transmission channel which may be inanimate, quasi-animate, or animate (such as a human messanger)
nweje	Participating is usually active, though it can be passive; a written message (letter, book…) would normally be considered a passive participant.	***nwejei***	Sending: The overall act of sending a message, not focusing on the steps in the process	***nwejwe***	Receiving: the overall act of receiving a message: listening, reading... (cf. *hune*)	***nwejwei***	Forwarding: including adding and losing information in the process
nweja	Activity requires energy, and communication is no exception. Here, “energy” includes physical and mental energy, motivation, emotion, etc.	***nwejai***	Sender-energy: the ability and motivation to communicate	***nwejwa***	Receiver energy: the ability and motivation to understand a message	***nwejwai***	Participant energy: the ability and motivation to forward a message
nwejo	The term “participant” includes inanimate enties.	***nwejoi***	The sender as entity	***nwejwo***	The receiver as entity	***nwejwoi***	The participant as entiry

16.7.4. Mechanism: *Nwed-*

Within the mind of a SENDER, the MESSAGE is totally neural and private. In order to be TRANSMITTED, it must be made physical. This requires a physical MECHANISM, which varies depending on the CHANNEL and the variety of MECHANISMS available.

Illustration

At this moment, I am composing "messages" explaining Nwehu Nuswei. The CHANNEL I have chosen is writing.

Choice of MECHANISM: I have several choices of MECHANISMS for writing. I could write by hand, in which case the MECHANISM would be my hand, moved by neural impulses, and a pen or pencil on paper or some other flat surface.

But I have actually chosen to use a computer to store my MESSAGE. Further, I have chosen to use a keyboard, since I have some facility with typing. Again, my hand is part of the MECHANISM, moving by neural impulses (quite different from the impulses for hand writing). Striking the keys in turn, the keyboard transmits key-codes to the computer, which in turn interprets them as Unicode characters and sends these to the RAM, then (when I save the file) to the hard drive in the computer.

Input, Function, Output: In writing both with pen-and-paper and computer, the input to the MECHANISM (my hand) starts as my memory of the spelling of each word (often faulty). The internal function of the MECHANISM (from neural through muscular to writing tool and permanent medium) is complex and different depending on whether I write by hand or type into the computer. In both cases, the output SYMBOLS are latin letters represented in a physical form (ink on paper, or magnetism on disk).

16.7.4.1. Vocabulary Dimensionality of This Species

- Core vowels
  - ᓀ *e*: WAVE, action
  - ᑎ *a*: FIELD, rules and principles
  - ᓂ *o*: PARTICLE, MECHANISM
- Peripheral vowels
  - ᑌ *u*: general principles
  - ᒐ *i*: input to MECHANISM
  - ᓄ–ᒐ *w-i*: internal function of MECHANISM
  - ᓄ *w*: output from MECHANISM

Mechanism

OSI
Layer 2: Data link

- Nwed-

Comm mechanisms	input into mechanism	output from mechanism	internal function of mech.
mechanism operating	inputing into mechanism	outputing from mech	internal functioning of mech
operational principles	rules for inputing	outputing from mech	rules for internal functioning
a comm mechanism	input into mechanism	output from a mechanism	an internal function of a mech

*Dp 16.34: **Mechanism** Species Organization*

*Dp 16.35: **Mechanism** vocabulary table with Notes*

Core value		General		Input		Output		Internal	
	u	*nwedu*	**communication mechanisms**	*nwedi*	**input into mechanism**	*nwedw*	**output from mechanism**	*nwedwi*	**internal function of a mechanism**
Wave	e	*nwede*	**mechanism operating**	*nwedei*	**inputing into mechanism**	*nwedwe*	**outputing from mechanism**	*nwedwei*	**internal functioning of a mechanism**
Field	a	*nweda*	**operational principles**	*nwedai*	**rules for inputing**	*nwedwa*	**rules for outputing**	*nwedwai*	**rules for functioning**
Particle	o	*nwedo*	**a communication mechanism**	*nwedoi*	**input into a mechanism**	*nwedwo*	**output from a mechanism**	*nwedwoi*	**an internal function of a mechanism**

Notes							
nwedu	communication mechanisms: Physical structures that produce physical transmission for communication	*nwedi*	input into mechanism: The form of the message as it enters a mechanism	*nwedw*	output from mechanism: The the point at which a message takes physical form	*nwedwi*	internal function of a mechanism: The process by which a message is converted to physical form
nwede	mechanism operating: The mechanism's action	*nwedei*	inputing into mechanism: The action of inputing a message to a mechanism	*nwedwe*	outputing from mechanism: The action of outputing	*nwedwei*	internal functioning of a mechanism: The action of converting input to output
nweda	operational principles: Methods of operation	*nwedai*	rules for inputing	*nwedwa*	rules for outputing	*nwedwai*	rules for functioning
nwedo	a communication mechanism: The physical structure itself	*nwedoi*	input into a mechanism: The input stream or entities being input	*nwedwo*	output from a mechanism: The physical output stream or objects being transmitted	*nwedwoi*	an internal function of a mechanism

16.7.5. Medium: *Nweb-*

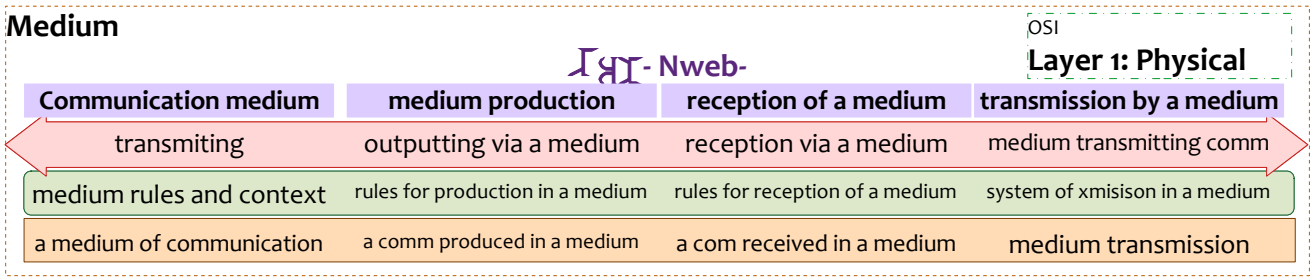
MEDIUM is the **physical substance via which a message is transmitted.**

- For speech, it is vibrations in the air or the gestures of sign language.
- For writing, it is patterns of contrasting color on a background.
- For stored messages, scrolls, books, inscriptions on stone, patterns of magnetism on a rotating disk.

Nwehu Nuswei provides widely applicable vocabulary for describing the production, transmission, and reception of MESSAGES in media.

16.7.5.1. Vocabulary Dimensionality of This Species

- Core vowels
  - ˧ *e:* WAVE, action
  - ˨ *a:* FIELD, rules and contexts
  - ˩ *o:* PARTICLE, MEDIUM
- Peripheral vowels
  - ˦ *u:* communication MEDIUM
  - ˥ *i:* MEDIUM production
  - ˦–˥ *w-i:* TRANSMISSION by a MEDIUM
  - ˦ *w:* RECEPTION of a MEDIUM



*Dp 16.36 **Mechanism** Species Organization*

*Dp 16.37: **Mechanism** vocabulary table with Notes*

		General		Activation		Reception		Transmission	
General	u	*nwebu*	**communication medium**	*nwebi*	**medium production or activation**	*nwebw*	**reception of a medium**	*nwebwi*	**transmission by a medium**
Wave	e	*nwebe*	**transmiting**	*nwebei*	**producing communication in a medium**	*nwebwe*	**receiving via a medium**	*nwebwei*	**medium transmiting communication**
Field	a	*nweba*	**medium rules and context**	*nwebai*	**rules for production of a medium**	*nwebwa*	**rules for reception of a medium**	*nwebwai*	**rules for transmission in a medium**
Particle	o	*nwebo*	**a medium of communication**	*nweboi*	**medium production**	*nwebwo*	**medium reception**	*nwebwoi*	**medium transmission**

Notes							
nwebu	communication medium: A physical transmission path	*nwebi*	medium production or activation: Starting the transmission in a medium; this refers not to the start-up process, but to the physical production, eg. the vibration of vocal chords creating the sound waves of speech, the flow if ink out of a pen onto paper	*nwebw*	reception of a medium: Receiving a message in a medium	*nwebwi*	transmission by a medium: Movement or storage of a message within a medium
nwebe	transmiting: Sending a message in a physical way	*nwebei*	producing communication in a medium: The act of producing the transmission in a medium	*nwebwe*	receiving via a medium: listening to speech, reading, etc.	*nwebwei*	medium transmiting communication: Process of transmission
nweba	medium rules and context: The nature of the physical medium and rules for using it	*nwebai*	rules for production of a medium: Includes the physical nature of the medium as well as conventions for its use	*nwebwa*	rules for reception of a medium: how to understand speech; how to read writing	*nwebwai*	rules for transmission in a medium: Nature of the medium and physical mechanism of its operation
nwebo	a medium of communication: A physical substance used for transmission, such as air (for speech), paper (for hand writing), or LCD screen (for display of writing)	*nweboi*	medium production: An instance of transmission being activated	*nwebwo*	medium reception: an instance of reading or hearing, etc.	*nwebwoi*	medium transmission: An instance of transmission via the medium

16.8. Language Vocabulary

As of this writing (2024-09-12) I have defined seven of the sixteen species of the genus ꓶꓬ-- *Pa*-- 'Language'.

0.	ꓶꓬꓲ-	*Pah-*	Language	§16.8.1
1.	ꓶꓬꓶ-	*Pax-*	Grammar Descriptors	§16.5.5
2.	ꓶꓬꓙ-	*Pax-*	Lexical Symbolism	§16.6.3
3.	ꓶꓬꓟ-	*Paf-*	Semantics	§16.5.4
4.	ꓶꓬꓡ-	*Par-*	Meaning	§16.5.6
5.	ꓶꓬꓛ-	*Pay-*	Linguistics	§16.8.2
6.	ꓶꓬꓘ-	*Pan-*	Word Classes	§16.8.3
7.	ꓙꓰꓶ-	*suc-*	Ideal and Instance	§16.8.4

Lexical details of the species that have not been described above follow here.

16.8.1. Language: *Pah-*

Species ꓶꓬꓲ- *Pah-* 'Language' is arranged dimensionally. The two dimensions are:

- WAVE – FIELD – PARTICLE (§1.3.1), represented in the core vowels ꓵ - ꓬ - ꓷ *(e – a – o)*
- Unit level, represented in the peripheral vowels ꓴ - ꓺ–ꓴ - ꓺ *(i – w-i – w)*

"Unit level" is the degree of complexity of analytical levels represented. Levels of complexity are focused primarily on lexical and syntactic structure, but can be flexible. For example, they may be useful in analysing phonological phenomena such as "tone stepping" and "tone sandhi".

1. **Basic**: the simplest irreducible units of analysis, according to the analytical system being used and the scope of analysis. For example, "morpheme".
2. **Intermediate**: language components consisting of one or more basic units but not necessarily a complete COMMUNICATION or process.
3. **Complete**: language components able to convey useful information on their own; generally a structure forming a MESSAGE.

The flexibility of this vocabulary conceivably allows one language unit to be described by all three levels at once – for example, the command “Leave!” at the lexical, syntactic, and complete-message levels.

16.8.1.1. *Vocabulary Dimensionality of This Species*

- Core vowels
  - ◌ᦵ *e*: WAVE, action complete structures
  - ◌ᦷ *a*: FIELD, rules and contexts
  - ◌ᦶ *o*: PARTICLE, language and language unit
- Peripheral vowels
  - ◌ᦳ *u*: concepts
  - ◌ᦸ *i*: basic units
  - ◌ᦺ–ᦸ *w-i*: intermediate structures
  - ◌ᦺ *w*: complete structures

Ɗᵨ 16.38: ***Language*** *vocabulary table with Notes*

Core value	General		Basic Units		Complete Structures		Intermediate structures	
General u	*pahu*	**language**	*pahi*	**basic units of language**	*pahw*	**complete language structures**	*pahwi*	**intermediate language structures**
Wave: e Dynamic	*pahe*	**using language**	*pahei*	**dynamic aspect of basic language levels**	*pahwe*	**dynamic aspect of a complete language structure**	*pahwei*	**dynamic aspect of intermediate language structure**
Field: a System, Rules	*paha*	**language systems**	*pahai*	**system and rules for basic language levels**	*pahwa*	**system and rules for complete language structures**	*pahwai*	**system and rules for intermediate language structures**
Particle: o Entities	*paho*	**a language**	*pahoi*	**a basic language unit**	*pahwo*	**a complete language structure**	*pahwoi*	**an intermediate language structure**

Notes								
	pahu	'Language' is any system of symbols and rules for communication.	*pahi*	The concept and study of irreducible language building blocks. The building blocks could be “universal” or different for each language, depending on the type of language, linguistic analysis, its purpose, use, and theoretical philo-sophy. In some analytical systems, the term “morphology” is applied.	*pahw*	Self-sufficiency or completeness of language units. “Completeness” here means the ability to convey an intentional piece or pieces of information: anything from a one-word question or command to a complex sentence.^	*pahwi*	Language components consisting of one or more basic units but not necessarily a complete communication or process

	pahe The process of using symbols and rules to communicate information	***pahei***	Using basic units of language.	***pahwe***	The process of creating self-sufficient, or complete language units at any level. Levels can be defined generally and refined for specific situations – for example, utterance, sentence, discourse.	***pahwei***	Use of language units at an intermediate level of process or complexity
	paha The rules and symbol-sets which provide the structure of a language	***pahai***	Set of basic elements for using a given language and rules for using them. For example, “morphemics” or “morphology”	***pahwa***	The units and rules for creating complete language units.	***pahwai***	Components and rules at intermediate levels of language or complexity
	paho 'A language' is a specific system of symbols and rules for communi-cation. In this sense, variants (dialects, ideo-lects, sociolects, etc.) may each be considered to be *paho* ‘languages’.	***pahoi***	A specific basic unit of any language under a given system of linguististc analysis. For example, a “morpheme”.*	***pahwo***	A comlete, self-sufficient language unit.	***pahwoi***	An intermediate language component, such as “word” or “phrase”

16.8.1.2. Discussion

- 𐤉𐤓𐤉𐤡 *Pahoi* and similar words: 𐤉𐤓𐤋𐤃 *Paso* is an entry in a lexicon, thus closely related to 𐤉𐤓𐤓𐤃 *Paro*, closest to “morpheme”. 𐤉𐤓𐤉𐤡 *Pahoi* is less specific, refering to basic language units at any scope of analysis. These concepts can be further clarified using words of SPECIES 𐤋𐤈𐤍- *suc-* (§16.8.4), which indicate whether a language unit is at the IDEAL or the INSTANCE layer of COMMUNICATION, the difference between “morph” and “morpheme”.

^ 𐤉𐤓𐤉𐤇 *Pahw* and other words in this SPECIES are focused on structures at a grammatical level. DISCOURSE and higher levels of COMMUNICATION can be referred to using words in the 𐤆𐤇𐤃- *Nwe-* ‘communicaton’ genus, such as 𐤆𐤇𐤃𐤉𐤃 *nwepo* ‘session’.

16.8.2. Linguistics: *Pay-*

This SPECIES represents some of the major areas of language study. I expect several further SPECIES will be used in future developments of NN.

16.8.2.1. Vocabulary Dimensionality of This Species

The SPECIES is not organized DIMENSIONALLY.

*Dₚ 16.39: **Linguistics** vocabulary table with Notes*

Core value		Study		Synchronic Variation		Diachronic Variation		Complex	
General	u	***pay u***	**study of languages**	***payi***	**language variation**	***payw***	**diachronic language study**	***paywi***	**language universality**
	e	***paye***	**paradigmatic language study**	***payei***	**social language variation**	***paywe***	**historically related language feature**	***paywei***	**complex language relationship**
	a	***paya***	**syntagmatic language study**	***payai***	**geographical language variation**	***paywa***	**historically related language variation**	***paywai***	**non-historically-evolved language**
	o	***pay o***	**a language study**	***payoi***	**a synchronic language variant**	***paywo***	**a diachronic language variant**	***paywoi***	**a feature of all languages**

Notes							
pay u	study of languages: scientific study of the nature of language(s), as opposed to the learning of individual languages	***payi***	language variation: study of variations in shared communication systems that are largely mutually intelligible by their users; often called 'dialectology'	***payw***	diachronic language study: study of the variation of languages over time; 'historical linguistics'	***paywi***	language universality: the study of features thought to be common to all or most languages
paye	paradigmatic language study: formulating an understanding of language based on structural paradigms or generative processes of language	***payei***	social language variation: variations in a shared language based on the social or racial status of the users; sometimes called 'sociolects'	***paywe***	historically related language feature: a feature of language that can be observed changing over time	***paywei***	complex language relationship: relationships between langauges or their features that are not clearly explained by geography, social structure, or diachronic change

	paya	syntagmatic language study: formulating an understanding of language based on relationships between meaningful units in messagesa language variant: any language variant that is not considered distinct enough to be a separate language; this includes both popular and 'expert' opinions about the differences	***payai***	geographical language variation: variations in a shared language based on the geographical area or origin of the users; sometimes called a 'regional dialects'	***paywa***	historically related language feature: a feature of language that can be related to a similar feature in a differenttime period group	***paywai***	non-historically-evolved language: languages that develop for cultural interchange ('pidgins, creols') or are developed artificially (Esperanto, Nwehu Nuswei, FORTRAN)
	payo	a language study: any effort or work to deepen understanding of a language or languages in general	***payoi***	a synchronic language variant: any language variant observed at roughly the same period of history; often called a 'dialect'	***paywo***	a diachronic language variant: a language variant which can be observed or reconstructed as used during a given period of history; ex. 'proto-Indo-European', 'Middle English'	***paywoi***	a feature of all languages: a feature which at some level is shared by all or most languages

16.8.3. Word Classes: *Pan-*

This SPECIES provides terminology for "parts of speech" (noun, verb, adjective, etc.). There are one-to-one translations of the most commonly used parts of speech, but the meanings are largely determined by the semantic structure of NN, and many have no English equivalent.
It is expected that linguists seeking to provide their own structural analysis of words in any given language will be able to draw from some of the NN terms, but may need to use compounds to meet their specific needs.

16.8.3.1. Vocabulary Dimensionality of This Species

- Core vowels
  - ◌ᦵ *e*: WAVE, types of verbs
  - ◌ᦷ *a*: FIELD, descriptors and contextualizer
  - ◌ᦶ *o*: PARTICLE, concepts; also determiners and social expressions
- Peripheral vowels do not carry consistent meaningful distinctions.

*Dₚ 16.40: **Word Classes** vocabulary table with Notes*

Core value		General							
General	u	***panu***	**meaningful lexical symbol**	***pani***	**independent meaningful unit**	***panw***	**dependent meaningful unit**	***panwi***	**compound meaningful unit**
Wave	e	***pane***	**predicate-head**	***panei***	**action predicate-head**	***panwe***	**stative predicate-head**	***panwei***	**performative**
Field	a	***pana***	**descriptor**	***panai***	**action descriptor**	***panwa***	**contextualizer**	***panwai***	**message-descriptor**
Particle	o	***pano***	**concept-word**	***panoi***	**referential**	***panwo***	**determiner**	***panwoi***	**social expression**

Notes								
panu	meaningful lexical symbol: a meaningful communication symbol, including 'words' which can be used alone, and 'morphemes' which must be used with others	***pani***	independent meaningful unit: a communication symbol with at least one meaning not dependent on context (cf. 'word')	***panw***	dependent meaningful unit: a lexical unit with meaning but which must be combined with others to be used in messages (cf. 'morpheme')	***panwi***	compound meaningful unit: a lexical unit composed of more than one meaningful unit
pane	predicate-head: cf. 'verb' in the most general sense	***panei***	action predicate-head: a verb that relates to an activity, as opposed to a state of being (cf. 'verb')	***panwe***	stative predicate-head: a verb that relates to a state of being, as opposed to an activity (cf. 'copula')	***panwei***	performative: expresson which by being uttered or written causes an action to take place (not to be confused with a command)
pana	descriptor: a meaningful unit which describes a state or another meaningful unit (cf. 'adjective,' 'adverb')	***panai***	action descriptor: modifies or provides precision to an action (a type of 'adverb')	***panwa***	contextualizer: provides context to a phrase, message, or narrative; time, location, attitudes (a type of 'adverb')	***panwai***	message-descriptor: provides information about a phrase, sentence, or message; such as affirmation, negation, emphasis, intended recipient, channel or other
pano	concept-word: a meaningful unit that refers to an object, entity, individual or concept (cf. 'noun', 'name')	***panoi***	referential: used to refer to a noun conveniently without using or repeating the noun itself (cf. 'pronoun', 'deictic')	***panwo***	determiner: a grammatical unit used to specify the role of a noun in a phrase, sentence, or narrative; may not have independent referential meaning	***panwoi***	social expression: a word that serves a primarily social or individual communicative function, such as greeting, curse, affirmation, negation, command or similar role

16.8.4. Ideal and Instance: *suc-*

This species was placed in the genus 𐤎𐤖-- *Su--*, apart from other communication and language GENI for two reasons. For one thing, the semantics are widely applicable to several other fields; but also because many of the concepts lend themselves to compounding with communication (and other) ideas, and this GENUS is phonologically adapted (for speakers of most languages) to dropping the first vowel. That makes its words convenient to use as MARKERS.

There is a thorough discussion of this SPECIES in §8.2.21, but the lexical entries are presented below in dimensional order.

16.8.4.1. Vocabulary Dimensionality of This Species

- Core vowels
  - 𐤖 *u*: concepts
  - 𐤄 *e*: WAVE, action
  - 𐤃 *a*: FIELD, abstractions
  - 𐤏 *o*: PARTICLE, entities
- Peripheral vowels
  - 𐤉 *i*: instance-level
  - 𐤅–𐤉 *w-i*: variants of abstract level
  - 𐤅 *w*: abstract-level

*Dp 16.41: **Ideal and Instance** vocabulary table with Notes*

Core value				Instance Level		Abstract Level		Variant of Abstract Level	
General	u	***sucu***	**Abstract and Concrete**	***suci***	**Instance, -etic**	***sucw***	**Abstract, -emic**	***sucwi***	**Instance is example of abstract, allo-**
Wave	e	***suce***	**Behavioral/ Communication action**	***sucei***	**Action instance**	***sucwe***	**Abstract action**	***sucwei***	**Variant action**
Field	a	***suca***	**Behavioral/ Communication field**	***sucai***	**Situation instance**	***sucwa***	**Abstract situation**	***sucwai***	**Variant of an abstract situation**
Particle	o	***suco***	**Behavioral/ Communication entity**	***sucoi***	**Entity instance**	***sucwo***	**Abstract entity**	***sucwoi***	**Variant of an abstract entiy**

Notes							
sucu	Type vs. instance (the concept)	***suci***	Instantiation	***sucw***	Archetype, Idealization	***sucwi***	Variation within a type
suce	Action	***sucei***	Instantiating	***sucwe***	Abstracting	***sucwei***	Varying with a type
suca	Description or rule-set	***sucai***	Instatantiation system, rules	***sucwa***	Abstraction system, rules	***sucwai***	Situations or rules for variation
suco	(Communication) object	***sucoi***	An instance	***sucwo***	An emic unit, type, or archetype	***sucwoi***	A variant

This concludes discussion of Communication.