
Liver as a Center of Cognition and Feeling in Anywaa

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Abstract

Anywaa is a Western Nilotic language which is spoken in Gambella, Ethiopia and Greater Pibor Administrative Area (South Sudan). The present study describes and analyzes liver as a center of cognition and feeling among the Anywaa society in south-western Ethiopia. The study was based on Conceptual Metaphor Theory and Embodiment Model (Lakoff and Johnson, 1980; Lakoff and Johnson, 2003; Kövecses, 2020; Gibbs, 2005). To collect the data, elicitation, introspection, texts and unstructured interview were used. This study clearly indicates that among the Anywaa, liver is commonly held as the center of cognition and feeling. For example, *wìlì tswiñ* 'to change liver' metaphorically means *to change an idea*. Hence, THOUGHT IS LIVER. Furthermore, the study indicates that in Anywaa, many abstract concepts such as desire, love, courage, interest, and/or wish are understood based on LIVER. For example, *páá tswíñà* 'not my liver' implies that the speaker is not interested in something and this implies that LIVER METONYMICALLY STANDS FOR DESIRE/INTEREST. Thus, liver regulates body functioning and interacts with other body parts like tongue, head, heart, eye, leg and skin for the daily life of a person. For example, the fact that we see with our eyes is metaphorically extended to seeing with liver to imply understanding, memory and imagination. This takes us to the conclusion that the Anywaa's mind is mostly embodied with liver being the center of feeling and cognition.

Keywords: Anywaa, cognition, feeling, metaphor, liver, embodiment

1. Background of the Study

The new view of cognitive science takes imaginative aspects of the reason-metaphor, metonymy and mental imagery to be central to reason, because they have physical or bodily basis (Lakoff and Johnson, 1999). This type of cognition in which meaning, reason or conception is shaped by our body, its function, shape and sensorimotor experience is called an embodied cognition (Gibbs, 2005:5; Lakoff, 1987:xi). According Gibbs (2005) mind, body and perception are inseparable due to perception, neural connections and the nature of our bodies. Evans and Green (2006:163&164) mention that meaning and conception have bodily basis, because conceptual structure is linked to

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image schema, which is directly meaningful due to its bodily basis. Therefore, conceptual metaphors, which mostly shape our thinking, are embodied. This implies that the language we use reflects our embodied cognition and experience (See also Langacker, 2006:29-31). The present study therefore deals with the analysis and description of the use of liver as a center of cognition and feeling in Anywaa based on embodiment model and conceptual metaphor theory.

Anywaa is a Western Nilotc language spoken in Gambella, Ethiopia and Greater Pibor Administrative Area, South Sudan. The language belongs to Northern Luo (Reh, 1996; Okello, 2022; Okello, 2023). The tribal name ánwáá (pl. ánwááè) derives from *jwàák*, which literally means sharing, eating together/doing something together. The Anywaa call their language *dá ánwáá* (see Okello, 2023). Studies conducted by Lakoff (1987), Alelign (2014), Evans and Green (2006), Gibbs (2005), Iroda (2022), Yu (2008), Lakoff and Johnson (1999) and Tramutoli (2020) show that languages like Chinese, English, Zulu, Russian, Swahili, Amharic and Uzbek use different body parts like head, heart, kidney, spleen, lung and gallbladder as centers of emotion and conception. These studies imply that the majority of languages use heart as a center of cognition and feeling. Regarding Anywaa, there is no detailed study about the embodied mind of the Anywaa based on liver as a center of cognition and feeling. Okello (2023) partly analyzes the liver as a center of feeling emotions but does not cover the relation between liver and other organs in detail. The present study therefore describes the liver as a center of cognition and feeling in Anywaa based on embodiment model and conceptual metaphor theory. This study has the following specific objectives:

- Identifying the linguistic metaphors, conceptual metaphors and target concepts expressed and understood based on the source domain of liver and,
- Analyzing the cognitive and experiential relation between liver and other body parts.

The present study is designed as qualitative, because it links liver with cognition, feeling and meaning. In order to collect the data, I mainly used elicitation, listening to daily utterances, and native intuition. The elicited data were validated with Omot Itangi(40 yrs,m) and Prince Obang²Ojulu (60yrs,m), whom I met in Gambella town on October 26-28/2023 and November 5-

²Prince Obang Ojulu is a lawyer who works in Addis Ababa, Ethiopia but Omot Itangi was in Addis Ababa, Ethiopia for training from October 28-30,2023. Both of theses informants have good understanding of Anywaa culture and vocabulary.

10/2023 in Addis Ababa, Ethiopia. Furthermore, on October 15-21/2025, I conducted an unstructured interview with Okello³Okugn(m,35yrs), Omeel⁴Ojulu(m,40 yrs) and Abang⁵Chibii Ngeel(fem, 50yrs) in Gambella town and Nyikwoo village. To link this study with previous studies, some texts were revised. The present study is based on the embodiment thesis (model) and Conceptual Metaphor Theory, because it deals with liver metaphors. The data were transcribed based on IPA(International Phonetic Alphabet) by using Leipzig Glossing Convention.

2. Literature Review: Embodiment

According to Gibbs (2005:1), embodiment in the field of cognitive science refers to understanding the role of an agent's own body in its everyday situated cognition. For example, how do our bodies influence the way we think. This implies that embodiment is the use of body part as a source of understanding complex or abstract concepts(see also Lakoff and Johnson, 1999). Human body therefore shapes language, metaphor, reason and concept. Schemas, which are preconceptual, structure our bodily experience and have basic logic for meaning formation. Preconceptual structural correlation in experience motivates metaphors which map that logic onto abstract concepts(target) domains. Thus, what has been called abstract reason has a bodily basis in our everyday functioning. This makes us base our theory of meaning and rationality on aspects of bodily functioning (Lakoff 1987:278). Johnson (1987) argues that since our reason and language are influenced by our body, the body is in the mind and this takes us to the conceptual metaphor MIND IS BODY.

2.1 Cognition and Perception

Perception is the ability to derive meaning from sensory-motor experience in order to guide adaptive behavior. Human perception is understood to arise from the information in the external world with the help of the five senses (Matlin, 2005). Cognition refers to understanding, acquisition of knowledge, use of knowledge, memory and thinking with the help of experience and senses(Gibbs,2005and Matlin 2005). The definitions provided by Gibbs(2005)

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and Matlin (2005) here imply that the making of meaning and concept is guided by human body and its interaction with the environment.

2.2 Emotion

Atwater and Duffy(2005:183) define emotion as a complex pattern of change in the body which includes physiological arousal, subjective experience(feeling), cognitive process and behavioral reactions. Based on Atwater and Duffy's (2005) definition here, it can be inferred that emotion has four major components: physiology, subjective feeling or experience, cognitive process and behavioral reactions. Human body is physiologically changed when experiencing emotion because emotion involves nervous system and brain. Emotion also involves subjective awareness or feeling like to be pleased or sad and the variation of its degree from person to person. In addition, emotion involves cognitive processes such as interpretation, expectation, memory and perception. Behavioral changes like facial expressions, tone or spoken language help us communicate our feelings to others (Atwater and Duffy, 2005).

2.3 Conceptual Metaphor Theory

Conceptual Metaphor Theory emerged as a challenge to traditional approach, which claims metaphor to be purely linguistic and used only by a talented person like a poet or musician for literary or rhetoric purpose. According to Evans ad Green (2006), Conceptual Metaphor Theory was first proposed by Lakoff and Johnson (1980), in their book titled *Metaphors We Live By*. Accordingly, in conceptual metaphor theory, metaphor is mainly cognitive and physically realized with linguistic metaphors (see Lakoff and Johnson, 2003). Briefly, in conceptual Metaphor theory, metaphor means understanding one concept in terms of another. Metaphor is therefore used based on domain, which is an organized knowledge based on physical experience (see also Lakoff and Johnson, 2003). The concept which is used as a source of understanding is called *source domain* and the concept to be understood is called *target domain*. The correspondence between source domain and target domain is called *mapping* (Kövecses,2010). To clarify the concepts of mapping and domains, the following English linguistic metaphors in (1a-c) were taken from Lakoff (1987:389):

- (1a)Those are inflammatory remarks.
- (b) He was breathing fire.
- (c) Boy, am I burned up!

The linguistic metaphors in (1a-c) underlie the conceptual metaphor ANGER IS FIRE. Therefore, the source domain FIRE maps onto the target domain ANGER. The burning thing corresponds to the angry person and the intensity of fire maps onto anger degree(see Lakoff, 1987). English has very good examples implying that the *heart* is the center of feeling and cognition among native speakers of English. For Example, Swan(2009:466) puts that metaphors like *lose one's heart to someone* and *heart of the matter* lead us to the conclusion that the heart is considered as a source of *love/interest* and the concept of *center/basic* thing among native speakers of English. Based on previous studies, some metaphors in Anywaa have been given below in (2a-c) to illustrate linguistic metaphors, mappings and conceptual metaphors.

(2a) tʃwín -à pòòt kwáár
 liver.of 1sg still red
 lit. 'My liver is still red.'
 'I am still angry.'

Okello(2023:90)

(b) tʃwín -ì dá mèèr
 liver.of 2sg exist love
 Lit. 'There exists love in your liver.'
 'You love someone/me.'(my own datum)

(c) tʃʌŋ mòr õ -òò -í
 sun another fut come fut
 lit. 'Another sun may/will come.'
 'There will/may be another day.' Okello (2022:105)

Based on the examples in (2a-c), we can infer and generate different metaphors/metonymies. In example (2a) the speaker implies that he is still angry based on the source domain of RED COLOUR linked with liver, because the Anywaa link red colour with danger/fire, death, destruction or blood(Perner, 1994:174). Therefore, in (2a) the fact that anger is a negative emotion has been understood has a red liver. We know that liver has dark reddish-brown colour but when it is understood as red, it implies anger. Hence, ANGER IS RED; INTENSITY OF ANGER IS INTENSITY OF REDNESS. This means our interaction with colours shapes our conception of emotions and other abstract/complex concepts metaphorically.

In example (2b) we can infer the conceptual metaphor LIVER IS A CONTAINER OF EMOTION(LOVE). The example in (2c) is not related to liver as it expresses time. This example implies that the SUN metonymically stands for DAY, because the Anywaa understand DAY based on SUN and they understand the MONTH based on MOON. Yet, the metonymy example in (2c) underlies the conceptual metaphor TIME IS MOVING ENTITY(see

Okello, 2022) for detail. Therefore, examples(2a&b) imply that it is worth conducting a detailed study on the use of liver as center of cognition and feeling in Anywaa to understand the embodiment of cognition, meaning and language thoroughly based on liver.

3. Analysis and Interpretation: Liver as a Center of Cognition and Feeling in Anywaa

In Anywaa, *tʃwɪŋ* 'liver' is the locus of cognition and feeling. Concepts like interest, desire, determination, appetite, personality, decision and sympathy are located in liver. Emotions are also centered in liver (Perner, 1994). The Anywaa's use of liver as a center of cognition and feeling supports Kövecses' (2015) statement that metaphors can originate from human body resulting in the formation of embodied metaphors. The Anywaa's use of liver as a center of interest, desire, or appetite can be illustrated as follows in (3a-d):

(3a) páá *tʃwɪŋ* -à ní -i *tʃɔðd* -à
 not liver.of 1sg to 2sg marry 1sg
 lit. 'It was not my liver to marry you.'
 'It was not my interest to marry you.'

In example (3a), the speaker is a boy who was not interested in the marriage with his addressee wife. Hence, he was influenced by his parents or his friends. Among the Anywaa, the concept of *being doubtful* is rendered by the compound noun *ŋɔr tʃwɪŋ* 'to cut the liver into pieces'. Experientially, when you cut an object into pieces, these pieces scatter and you will not have one to take as they become more.

(b) *tʃwɪŋ* -à bá máŋ *tʃam*
 liver.of 1sg not want eating
 lit. 'My liver does not want eating.'
 'I have lost my appetite.'

In (3b), liver has been represented as the center of appetite in Anywaa and liver is almost like the whole person who does not like to eat. Therefore, example (3b) implies LIVER METONYMICALLY STANDS FOR A PERSON. In Anywaa, loss of appetite/hatred is termed as *tʃɔl tʃwɪŋ* 'blackness of liver', which is based on the experience of black and/or dirty object.

(c) *tʃwɪŋ* -i rè -ɛ éé dèèd -ɔ
 liver.of 2sg body.of 3sg perf close complt
 lit. 'Your liver has closed itself(its body).'
 'You have lost your appetite.'

In (3c) loss of appetite has been understood as a closed liver. The addresser in (3c) clearly knows that the addressee does not eat food well/the addressee has

totally refused to eat the food. This means the Anywaa believe liver to regulate appetite/desire/interest.

(d) *tʃwípñ jñlààl á -dʒàppò dótʃ*
 liver.of child pst open deg
 Lit. ‘The child’s liver has opened very much.’
 ‘The child’s appetite has increased very much.’

Example (3d) entails that the child lost his/her appetite before but currently eating very well. Perhaps, the child could have been suffering from disease like jaundice. Generally, based on examples (3b-d), we can formulate the following conceptual metaphors: INTEREST/APPETITE IS OPEN (LIVER); LOSS OF APPETITE OR LACK OF INTEREST IS CLOSED (LIVER). When we reject food, we close our mouths because our liver is closed. We know that some people are aggressive but others are polite. A person may be gullible and this referred to in Anywaa as *tʃwíjnè òtòw* ‘A person whose liver is dead’. The use of liver as a center of personality can be broadly understood in the idioms below in table 1.

Anywaa Idiom	Literal translation	Free Translation
<i>tʃwíjn èbátl</i>	His/Her liver is tasteless	He/She is gullible, patient/generous
<i>tʃwíjnè kéétf</i>	His/Her liver is bitter	He/She is aggressive/hot-tempered
<i>tʃwíjnì ráátf</i>	Your liver is bad	You are cruel
<i>kéétf tʃwíjn</i>	Bitterness of liver	aggressiveness/hot-temperedness/cruelty
<i>bátl tʃwíjn</i>	Tastelessness of liver	Generosity, patience/being gullible
<i>tʃwíjnè éé tʃíp píñ</i>	He/She has put down his/her liver	He/She is patient
<i>tʃíp tʃwíjn píñ</i>	Putting down a liver	Patience/being patient
<i>tʃwíjnè òtòw</i>	His/Her liver is dead	He/She is innocent, polite/gullible
<i>tʃwíjnà láàrà pàdò</i> kiper dááñò	My liver falls immediately for a person	I'm very sympathetic

Table 1: Liver as a center of personality in Anywaa adapted from Okello(2023)

In table 1 above, we can infer the experiential bases of personality linked with liver. The use of tasteless object like water to understand generosity is because a tasteless object does not cause a problem and so, does a patient person. Similarly, the linking of a bitter taste like that of pepper to liver to understand aggressiveness is based on the problem and irritation caused by bitter taste. Hence, AGGRESSIVE IS BITTER; PATIENT/WELL-MANNERED IS TASTELESS. The Anywaa believe that inside a liver, there is a fluid called *tʃér*, which is bitter and makes a person courageous/aggressive. The use of putting down an object/liver as a source of understanding patience is physically based on the fact that something put in its appropriate position does not cause a problem or disturbance as it does not move. Patient people sit down but those who are agitated or those who are rushing stand move and

make noises. In Anywaa, when a person is very sad or very afraid and about to fall, he/she is encouraged with the imperative mák tʃwíñì 'Hold your liver firmly'. However, if there is páŋ tʃwíñì 'falling of liver' for a person who has a problem, this implies *sympathy*, which is a mix of sadness and tolerance.

3.1 Liver Replaces and Controls other Organs

The Anywaa believe that liver is the regulatory of human activity, life, personality and perception. It can therefore function like an eye, nose, skin, leg or tongue (see also Okello, 2023). Consider the examples below in (4a-d) for detail.

(4a) nèènò dʒìr -à kí tʃwíñì -à
 visible to 1sg with liver.of 1sg
 lit. 'I can see(it) with my liver.'
 'I know what is/ was going on/I can remember/imagine it.'

Example (4a) tells us that liver functions like an eye or brain, because the example implies being aware of the current situation or past situation based on imagination/memory and awareness. Hence, KNOWING/UNDERSTANDING IS SEEING.

(b) kí báŋ -ì ní gír -ì mét?
 from to 2sg that issue.of 2sg tasty
 lit. 'Do you think your issue is tasty?'
 'Do you think what you are doing is good?'

In example (4b), the speaker is speaking to the addressee, who is doing a bad thing. The word mét 'tasty' evokes our experience of tasting food with our tongue. The speaker in (4b) therefore judges that what the addressee is doing is bad as his/her liver does not enjoy it. Thus, in (4b) the judgment of bad thing with liver is based on tasting bad taste with tongue. So, liver has functioned like a tongue. Hence, GOOD/ENJOYABLE IS TASTY; BAD IS NOT TASTY.

(c) tʃwíñì dʒàál á -gùt -ì
 liver.of old man pst touch 2sg
 lit. 'You touched the old man's liver.'
 'You intensified the old man's feeling/anger.'

In (4c) the experience of touching human body/skin has been used as a source domain to talk about intensifying the old man's feeling/anger, which is in liver. If something is shaken, it brings much disturbance. In (4c) the liver therefore has been used as an external body or skin to be touched causing the old man's irritation. Therefore, INTENSIFYING ANGER IN LIVER IS TOUCHING HUMAN BODY/SKIN; EMOTIONAL FEELING IS PHYSICAL FEELING.

(d) tʃwíŋ -i tʃáát -á kòòr kòòŋjò
 liver.of 2sg walk foc after beer
 lit. 'Your liver is going after drink.'
 'You are giving more (focus)/ attention to drink.'

In (4d) liver has been depicted as a walking creature like a human being because attention is in liver. This implies that addressee in (4d) is a drunkard, who usually gives more attention to drink by ignoring other aspects of life. The experience of talking about attention is based on going somewhere with our legs. We usually follow whom we love. Also, we usually go where we like/We go to what we like. Therefore, ATTENTION IS MOTION. Generally, the examples in (4a-4d) support Evans and Green's (2006) point that our experience is embodied—that is, it is structured by the nature of our bodies and by our neurological organization making our cognition *an embodied cognition*(see also Lakoff and Srinivas, 2025). Therefore, the Anywaa's use of eye, leg, and the whole body or skin as a source of embodied metaphors and cognition in (4a-4d) suggest that folk theory and scientific theory can sometimes work together.

3.2 Liver as a Center of Intellect

Among the Anywaa, the head is the center of intellect. Imagination, thinking, forgetting, fantasy and memory are clearly understood by the Anywaa to exist in head. However, the Anywaa also believe that long term memory and faith are in liver (Perner, 1994). Thus, there is no forgetting in liver. Consider examples (5a-c) for detail.

(5a) à tʃádò kí tʃwíŋ -à
 1sg thinking with liver.of 1sg
 lit. 'I am thinking with my liver.'
 'I am deeply thinking.'

In (5a) the speaker is deeply thinking and will come to good point or idea because deep thinking which brings solution to the problem is in liver.

(b) à tʃádò kí wí -á
 1sg thinking with head.of 1sg
 lit. 'I am thinking with my head.'
 'I am trying to think about the issue.'

In (5b) the speaker is thinking with difficulty, because there is forgetting in head. This speaker may not come to good point/solution because a head is usually easily disturbed by factors like noise, spirit or insult.

(c) à tʃádò kí jí -à
 1sg thinking with stomach.of 1sg
 Lit. 'I am thinking with my stomach.'
 'I am thinking with doubt.'

In Anywaa, since it is believed that there is big doubt in stomach, it is very difficult to come to point or idea when one thinks with his/her stomach. The speaker in (5c) has much confusion and doubt and therefore may not get the solution to the problem. Furthermore, in Anywaa understanding things with head and liver have different degrees and effects. Consider examples (6a&b) below:

(6a) pòùtʃ ā -tʃí tʃwíp⁶ -à
 lesson pst go liver.of 1sg
 Lit. 'The lesson went into my liver.'
 'I have understood the lesson very well.'

In (6a) the lesson mainly refers to an advice or biblical lesson delivered in the church. The speaker in (6a) has deeply understood the lesson and it is very difficult for him or her to forget. A lesson in liver becomes one's part of life or faith, which brings change in one's life, because strong belief is in liver although belief can exist in stomach.

(b) pùòtʃ ā -tʃí wí -à
 lesson pst go head.of 1sg
 Lit. 'The lesson entered my head.'
 'I have understood the lesson.'

In (6b) the lesson, which has been understood with head, mainly refers to academic lesson like maths lesson, which may be forgotten after a very short time. After completing an examination, many students forget a lesson. Examples (6a&b) take us to the following cognitive metaphors: LESSON IS A MOVING ENTITY ENTERING HUMAN HEAD; UNDERSTANDING IS RECEIVING AN OBJECT(LESSON) WITH HEAD. The Anywaa's belief that liver thinks like a person or head can be understood in the following poetic metaphor hymn in (7a&b):

(7a) tʃwíp már -à tʃád -í
 liver.of of 1sg think 2sg
 'My liver, think (carefully).'
 (b) ní pòjí -í dʒòòk⁷ mán áa...
 and thank 2sg God this inter
 'And thank this God.'

⁶In Anywaa, the singular form of liver is tʃwíp and its plural(pl) counterpart is tʃwípjì 'livers'. The modified singular and plural form for genitive construction takes high tone as tʃwíp 'liver(s) of'.

⁷The hymn was produced by Othow Obang and sung by Peter John on October 28,2023 in Gambella town, Ethiopia.

In examples (7a&b), Othow Obang is addressing his liver through personification or apostrophe to think carefully and guide him carefully to thank and pray the God for the good things HE did to him. The interjection ă... implies Othow's satisfaction and confirmation that God has truly helped him. In (7b) the rising tone and the vowel extension in the interjection ă... imply Othow's extreme happiness and satisfaction. This implies that vowel extension and tone have cognitive bases which are based on concrete rising/increasing objects, falling/decreasing objects and intensity of pitch. Hence, MORE OF CONTENT(MEANING) IS MORE OF FORM; EXTREME(EMOTION) IS INFINITE(VOWEL EXTENSION). Generally, the Anywaa's use of liver as a source domain of thought can be clarified by the following examples in (8a&b).

(8a) tʃwíŋ -à ă -wíl -à
 liver.of 1sg pst change 1sg
 Lit. 'I (have) changed my liver.'
 'I (have) changed my view/mind.'

(b) tʃwíŋ -i pòòt kùù -à dò...tʃ
 liver.of 2sg still to not know 1sg deg
 Lit. 'I have not yet known your liver very clearly.'
 'I have not yet understood what you think/your personality very clearly.'

As we can see in (8a&b) both examples use liver to represent thought/view/personality. Therefore, example (8a) underlies CHANGING MIND IS CHANGING LIVER, which is based on changing physical objects and example (8b) implies that UNDERSTANDING/KNOWING IS SEEING/PERCEPTION. This means language, perception and cognition are not separable(see also Evans and Green, 2006).

3.3 Liver as a Source Domain and Center of Emotions

In Anywaa, emotions like anger, happiness, love, jealousy and fear can be understood based on liver. Thus, LIVER METONYMICALLY STANDS FOR EMOTIONS, because it is the center of feeling and emotions. In metonymy, one concept stands for another but both are in the same cognitive model (see Kövecses, 2010). Happiness is the feeling of pleasure and well-being, but anger is displeasure. Love is an affectionate feeling and attachment with a person or persons. Jealousy is a wish or desire of something possessed by another person (Atwater and Duffy,2005). In Anywaa, emotion is generally understood as pain/disturbance in liver. This has been illustrated in (9a-c) below.

(9a) gír -í lét tʃwíñ -à
 thing.of 2sg painful liver.of 1sg
 Lit. 'Your issue is painful in my liver.'
 'I have felt your issue very much.'

The example in (9a) implies that the addressee spoke a bad word to the addresser or the addresser is expressing his/her love for the addressee. Thus, strong feeling and controlling of emotion is in liver. Generally, the Anywaa's understanding of emotion as pain in liver as *gírì lèt tʃwíñà* 'Your issue is painful in my liver' to imply the addresser's much love for the addressee is based on the experience of feeling painful things like knife, thorn, spear or bullet with the external body. As painful things make us passive/disturb us, an emotion like love too makes us passive/disturbs us. This implies FEELING AN EMOTION IS FEELING PHYSICAL PAIN.

(b) lùñmm -è á -dʒòòr tʃwíñ -à
 issue.of 3sg 1sg feel pain liver 1sg
 lit. 'His/Her issue has been felt by my liver.'
 'I have felt his/her issue very much.'

The example in (9b) combines many concepts. It can mean the speaker was offended by the person he/she is talking about or the speaker has felt the problem faced by that person so that he/she will try to help him or her. Both examples (9a&b) can also imply falling in love.

(c) tʃwíñ -í pán kí gúók
 liver.of 2sg full with jealousy
 lit. 'Your liver is full of jealousy.'
 'You are very jealous.' Okello (2023)

The example in (9c) implies that in Anywaa liver is a container of emotions like jealousy and a person becomes very affected by an emotion when his/her liver is full of an emotion. This means the jealousy agitation, which disturbs a jealous person, comes from liver. Hence, JEALOUSY(EMOTION) IS A SUBSTANCE IN LIVER. Furthermore, in Anywaa, people feel emotion, because it is felt by liver. So, people accept things because they are accepted by liver and they reject things because they are rejected by liver. The following examples in (10a-c) are worth mentioning for detail.

(10a) tʃwíñ -à ò -gùòòtò
 liver.of 1sg perf be angry
 lit. 'My liver is angry.'
 'I'm angry.'

In (10a), LIVER METONYMICALLY STANDS FOR THE PERSON WHO IS ANGRY. Hence, synecdoche (part-whole) metonymy type.

(b) ààñ -ò gòòtò
1sg perf be angry
Lit. 'I am angry.'

In (10b) the angry person metonymically stands for angry liver, because the anger a person feels is first felt by the liver. Hence, whole-part(holonym) metonymy. This means both examples (10a&b) have similar meanings, but different metonymies.

(c) tʃwíñ -à bà dʒièj
liver.of 1sg neg:hab/fut accept
lit. 'My liver will not/does not accept it.'
'I do not/will not accept it.'

In (10c) we can infer that the speaker does not like what has been suggested, but like a person, liver has been represented to reject that thing/idea. Strictly speaking, because liver is the center of feeling and desire among the Anywaa, a person likes what his/her liver desires and dislikes what his/her liver hates. Furthermore, emotions like happiness, love and jealousy can be understood based on liver and its aspects as follows in (11a-c).

(11a) tʃwíñ -à mét
liver.of 1sg tasty
lit. 'My liver is tasty.'
'I am happy.'

In (11a) happiness has been understood based on tasty food felt by liver. The tasty food like fish, which we feel with our tongue, brings pleasure and mood due to satisfaction. In Anywaa, the concept of happiness is compounded as mét ètʃ 'tastiness of stomach'/mét tʃwíñ' tastiness of liver'. Hence, HAPPINESS IS TASTY FOOD(GOOD LIVER). Tasty food and happiness are related, because both are positive and bring positive feeling and physiology. Although emotion can be felt with stomach, the Anywaa believe that the strongest organ to feel and control emotion is liver because an emotion felt with stomach is spontaneous (see Perner, 1994).

(b) ɔdʒùlù tʃwíñ -è pál dòtʃ ká ātʃala
Ojulu liver.of 3sg very big deg with Achala
Lit. 'Ojulu's liver is very big for Achala.'
'Ojulu loves Achala very much.'

In (11b) Ojulu's much love for Achala has been understood based on big liver for her. Hence, INTENSITY OF LOVE IS THE SIZE OF LIVER;MUCH LOVE IS A BIG LIVER. In Anywaa, méej wàj 'infatuation'(lit.eye's love) refers to a kind of love in which a person looks at another person or a girl several times and falls in love with him or her immediately, but the observer

does not explain his love to that person. However, *méej tswij* 'love of liver' is a true love which is based a long term of evaluation of one's lover's behaviour. Then, a boy explains his love issue to a girl so that a girl agrees with a boy. This love leads to faithful marriage and everlasting life of a couple. In fact, among the Anywaa, an emotion coming from liver is very strong and very true.

(c) kér tswij -i pál kī džáp džij
 neg liver.of 2s very big with things.of people
 lit. 'Your liver should not be (very) big for other people's properties.'
 'Do not be jealous.'

In example (11c) size of liver has been used as a source domain of jealousy, because human wish or desire is in liver and jealousy is wish for something possessed by another person (see Atwater and Duffy, 2005). The Anywaa word for jealousy is *pál tswij* 'bigness of liver'. This takes us to the conceptual metaphors INTENSITY OF JEALOUSY IS SIZE OF LIVER⁸; HIGH DEGREE OF JEALOUSY IS VERY BIG LIVER & AN INCREASE IN THE INTENSITY OF JEALOUSY IS AN INCREASE IN THE SIZE OF LIVER. In Anywaa, fear is understood as soft liver but courage/bravery is understood as hard liver. Table (2) has been given below for the detail of the Anywaa's conception of fear and courage based on liver's texture.

Anywaa Idiomatic Metaphor	Literal Translation	Free Translation
<i>tswijé džóóm</i> ⁹	His/Her liver is soft.	He/She is fearful.
<i>báñ tswij</i>	He/She has no liver.	He/She is fearful.
<i>báñ tswij</i>	Having no liver.	Fearfulness.
<i>tswijí téék</i>	You liver is hard.	You are brave/courageous.
<i>téék tswij</i>	Hardness of liver	Courage
<i>tswij wánni</i>	His father' liver	His inherited fear/courage from his father.

Table 2: Understanding fear and courage based on liver's texture in Anywaa (Okello,2023) and Perner(2003)

Based on table 2, we can infer that a person may be fat but weak/fearful because his/her liver is soft/weak. Similarly, a person may be slim/thin but may be strong/courageous because his/her liver is hard/strong. Most of the times, the Anywaa believe that females are fearful, because their livers are soft

⁸In addition to liver, the Anywaa use intestine(s) as a source domain of understanding jealousy. For example. *tjínó mári dóñ dótj* 'Your intestine is very big' means *You are very jealous/very greedy*.

⁹ In addition to expressing fear, the idiom *tswijé džóóm* 'His/Her liver is soft' can refer to someone who laughs with minor thing/someone who vomits quickly when he/she experiences bad/unpleasant thing. This implies that among the Anywaa laughter and vomiting are believed to be triggered by liver.

but males are courageous because their livers are hard/strong. Generally, human courage and weakness mainly comes from the liver but not the external body.

The Anywaa's use of bitter taste attributed to liver to talk about hot-temperedness/aggressiveness and hard and soft livers to talk about fearfulness and courage clarify the experiential bases of these concepts to be BITTER TASTE, HARD OBJECT and SOFT OBJECT. A hard object like metal or stone cannot be easily destroyed. Courageous people are usually feared for their strength. This proves what Gibbs (2005) states that language is embodied and experiential (see also Lakoff and Johnson, 1999). Evans and Green (2006:46) state that we can only talk about what we can perceive and conceive and the things we perceive and conceive derive from our embodied experience. This statement makes empiricism stronger and more evidential than rationalism(see also Lakoff, 1987).

3.4 Hierarchies of Organs in Anywaa

In Anywaa, three major organs regulate human life, but liver has dominance over the other organs (see Okello, 2023). The hierarchy of these organs can be given as follows:

(1). LIVER- is the most valued organ for life because it is the center of many things like interest, health, personality, emotion, courage, and appetite (see also Okello, 2023). Liver is also the healthiest organ; it is also the strongest organ to control emotion and other things. External things like pain and firing may affect liver, but they are controllable by it. Furthermore, liver is the cleanest organ which fights with dirty or bad things. Thus, liver is the best cleaner of waste materials in human body. For example, *tswípè tój* 'His/Her liver is clean' refers to *a kind person* (Perner, 2003:222 and Okello, 2023). This means both sensorimotor experience and cultural belief constraint our conception, language and meaning.

(2). HEART- is valued for continuity of life and little consciousness. It is the center of life, which beats inside it in the form of spiritual matter (Perner, 2003). When a person dies, a spiritual heart called *ādúúnnò*¹⁰ flies to God in the form of spiritual air and God reshapes this heart to be a living matter in the form a ghost like snake, crocodile, bird, lion or monitor lizard. This organ is mostly believed to be regulated by God, because it contains life, the spiritual

¹⁰This is based on my conversation with Prince Othoo Ojulu (m, 50 yrs) on October, 26/2025 in Gambella town.

matter. However, the heart can be negatively affected by omens, bad news or bad events bringing palpitations, fainting and death (Perner, 1994:240).

(3). HEAD- is the center of intellect and consciousness, which is assisted by eyes. In head, we find not only the brain, which contains intelligence but also fantasy. Yet, the brain is disturbed by madness, which exists as a spiritual air above human head (Perner, 1994 and Perner, 2003). Generally, liver protects heart and head to lead good life as determination, personality, emotion and the control of emotion are in liver. What happens in liver affects the head, heart or any other body part. Hence, liver is the central unit of life among the Anywaa. However, among the Anywaa, intestine/anus is the less valued organ, because it does not help for perception and it is always dirty (see also Perner, 2003).

4.General Discussion of the Results

The present study deals with description and analysis of liver as a center of cognition and feeling in Anywaa based on *Conceptual Metaphor Theory* and the *Embodiment thesis (model)*. The study applied qualitative design by using elicitation, introspection, texts and unstructured interview. This study confirms that liver is used as the center of cognition and feeling in Anywaa. The study therefore supports previous studies like Lakoff and Johnson(1999), Gibbs (2005) and Lakoff and Srinivas (2025) which reveal that cognitive science has discovered that our reason(mind) is metaphorical and embodied but we are not conscious of metaphors and conceptual system.

Further, the present study implies that abstract/complex concepts like emotion and personality can be understood based on liver by using metaphor or metonymy so that they are easily understood. This further supports what Kövecses(2017) mentions that the central tenet of conceptual metaphor theory is that abstract concepts like emotion are complex and therefore need concrete source domains like body so that they are easily understood based on body or other concrete objects. However, the Anywaa's general conception of liver to be the central unit of life is extended to concrete concepts. For example, According to Okello (2023), in Anywaa, the most fertile part of a farm in which bigger maizes or sorghums are cultivated/produced is called *tswíñ qò̄l* 'liver of a farm' and the part of maize grain from which plumule and radicle grow/develop is called *tswíñ àbàts* 'liver of maize grain'. This implies that image schemas such as IN, OUT, CENTER and PERIPHERY can be formed based on liver. Thus, liver is central to human survival, life, understanding, imagination, wisdom, appetite and controlling emotion.

The Anywaa believe that physiologically, liver is flat, smooth and clean(er) and protects us from danger, because it cannot be easily affected by spiritual/physical matters. Further, liver is highly protected by strong organs like ribs and chest (see also Bas, 2018). Scientifically, it is confirmed that more than 500 functions are identified with liver. Some of the major functions of the liver are storage of iron, clearing the blood of drugs and other poisonous substances, production of bile and resisting infections (Chamber, Huang and Matthew, 2015). As the study implies, these scientific findings correlate with Anywaa's believe that liver cleans bad things in the body, builds human body and controls appetite.

The use of liver as a center of cognition and feeling is not limited to Anywaa. For example, according to Bas(2018) in Turkish *ciger'* liver-lung' is a metonym for a person, living organism, and object of value and container/locus of emotion. In both Anywaa and other Luo languages like Lango and Päri, liver is center of cognition and feeling (see Okello, 2023, Noonan, 1992 and Dimmendaal, 2015). Yet, Dinka and Nuer use heart as the center of cognition and feeling although they belong to Western Nilotic (Crazollara, 1933; Nebel, 1948). Bas (2018) further mentions that Malaysian, which is not a Luo language, uses liver as its center of conception.

The majority of world languages use heart as a center of conception and feeling (see Swan, 2009, Gibbs, 2005 and Evans and Green, 2006). Studies like those of Alelign (2014), Yu (2008), Gibbs (2005), Swan (2009), Iroda (2022) and Tramutoli (2020) indicate Amharic, Chinese, English, Zulu and Russian, use heart as the faculty of feeling and cognition but English mainly uses the head as center of intellect(e.g sharp mind, Swan, 2009). These findings suggest that based on embodiment (thesis), languages can be classified as liver languages, heart languages, lung languages, head languages and others. These typologies in turn confirm Okello's(2022) hypothesis that linguistic typology is a physical manifestation of cognitive typology. Therefore, embodiment plays a key role for the study of typologies of conception, meaning, metaphor and language.

The Anywaa's use of liver as a source domain of understanding abstract concepts like wish, desire, emotion, and courage clarifies that abstract concepts like emotions are not contentless but are meaningful/contentful. This finding supports Kövecses and Lakoff's (1987) finding that emotions are usually thought to be contentless but are *purely cognitive* because they are motivated by physiology. Thus, the metaphorical language of emotions we use

is not arbitrary but motivated by body (part), temperature, interaction with environment, perception and physiology. Gibbs (2005) puts that nervous system, physiology, mental imagery and perceptual experiences like sight and taste are connected to human brain and motivate thought, language, concepts and meaning.

Summary and Conclusions

The present study is a description and analysis of liver as a center of cognition and feeling in Anywaa. The study applied conceptual metaphor theory and embodiment model. The findings confirm that in Anywaa, liver can be used to conceptualize emotion, thought or center of something. For example, the linguistic metaphor *tswíngè ዳግለበ* 'Their livers have attached themselves together' means the lovers are very united by love. Hence, LOVE IS UNITY/BOND. Similarly, *tswíni አድጋዥዳ*'I have seen your liver' implies that the addresser has understood what the addressee thinks. Hence, KNOWING/UNDERSTANDING IS SEEING;IDEA IS OBJECT/LIVER. Furthermore, this study indicates that, in Anywaa, LIVER METONYMICALLY STANDS FOR PERSON. The use of liver as a center of cognition and feeling in Anywaa suggests that liver is believed to interact with and controls other organs like heart, head, tongue, eye, nose and leg. The present study generally indicates that the Anywaa's mind is dominated by liver. Therefore, in the mind of Anywaa, there is MIND IS BODY metaphor, whose sub-conceptual metaphor is MIND IS LIVER, because liver shapes human body, mind and concepts.

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Abbreviations and Symbols

1	first person
2	second person
3	third people
complt	completive aspect
deg	degree
foc	focus
hab	habitual
inter	interjection
mv	middle voice
neg	negative
perf	perfective
pst	past tense
^	high tone
~	low tone
-	mid tone
^	rising tone