



# A Study of Polysemy and Metaphor of Hausa Perception Verbs of Vision: A Cognitive Linguistics Approach

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## Publication details:

**Received:** August, 28, 2022

**Accepted:** September, 12, 2022

**Published:** September, 30, 2022

## Abstract

This paper examines the polysemy and metaphor of Hausa perception verbs of vision from a cognitive semantics perspective, which is a sub-field of cognitive linguistics. The objective of the study is to identify how underlying polysemous extensions of the Hausa perception verbs trigger the conceptual metaphor of vision. In conducting the research, ethnographic research methods were employed in collecting the data for this study, while the conceptual polysemy model proposed by Ibarretxe-Antunano (1999) and the conceptual metaphor theory (CMT) propounded by Lakoff and Jhonson (1980) were adopted as the theoretical framework of the research. The outcome of the study reveals that Hausa perception verbs of vision, when polysemously extended conceptually, encode an array of conceptual metaphors that conceptually denote mental activity and experience, social activity, and evidential experience. Finally, the result of the study establishes a relationship between perception and cognition.

**Keywords:** Cognitive linguistics, perception verbs, polysemy, conceptual metaphor

## 1. Introduction

Perception is the ability to notice things and understand the true nature and position of someone or something using our senses. Thus, verbs are indispensable grammatical elements in expressing such internal sensations and perceptions, and their usage cuts across various semantic fields of perception. However, in cognitive linguistics, the conceptual structure of sensory perception verbs is sometimes linked with polysemous sense (meaning) extension, which is conceptually motivated by metaphor. According to traditional linguists and lexical semanticists spearheaded by Lyons (1977), Palmer (1981), and Breal (1991), "polysemy" is the association of two or more related senses with a single word. While cognitive linguists like Brugman (1981), Lakoff (1987), Langacker (1987), Taylor (1995), Cuyckens and Zwada (1997), Petho (1999), Nerlich et al. (2003), Croft and Cruise (2004), and Evans and Green (2006) see polysemy as a lexical unit that is treated as a conceptual category organised with respect to an ICM or prototype, Thus, "it is a variation in the meaning of a word or phrase on different occasions of use" (Croft & Cruise, 2004, p. 109). They also believed that polysemy is not solely related to the meaning of words but rather exists in various parts of grammar. Grammatical categories like verbs are conceptually extended (e.g., see Panther & Thonbourg, 2002; Lehrer, 2003; Janda, 2005; Basilio, 2009), and their semantic shift is plausibly associated with their polysemous meaning extension. Therefore, this study is built on the premise that "grammatical categories and constructions all take the form of symbolic units" (Langacker, 1991, p. 16). Thus, Hausa visual perception verbs within grammatical categories are symbolic units whose meanings are polysemously grounded conceptually through metaphoric links.

The relationship between perception verbs of vision and other domains like cognition was first established by Lakoff and Jhonson (1980), who emphasised the importance of cognition over other sense modalities. They proposed the general metaphor THINKING IS PERCEIVING. However, based on this conceptual metaphor, Sweetser (1990) advanced the "body-as-mind" conceptual metaphor through the polysemous extension of Indo-European language perception verbs to abstract domains like cognition and emotion, which according to her is very probably motivated by correlations between our external experience and our internal emotional and cognitive state. The research revealed that perception verbs of vision are the prime sensory perceptions that motivate metaphors of cognition through their systematic polysemous extensions. Similarly, Viberg (1984) studies the sense modality hierarchy structure of perception verbs in Indo-European languages. The study shows the primacy of vision among other sense modalities in the domain of perception due to its prevalence and ubiquity across various languages. In addition, Ibarretxe-Antunano (1999) investigates the polysemy and metaphor of perception verbs in Basque, English, and Spanish. The study showed how our experience and understanding of the five senses (i.e., auditory, gustatory, olfactory, and visual) shapes the way in which we create mappings between the physical domain of perception and the metaphorical and abstract conceptual domain of experience. Thus, polysemous extensions in perception verbs, both diachronically and synchronically, have not occurred by accident but rather are grounded in our conceptualization of the sense modalities.

Besides, Gachugi (2018) studies the polysemy that exists in the semantic field of perception verbs in the Gikuyu language. The study observes that perception verbs do not only convey meanings that are related to the physical perception of each sense modality (i.e., vision, tactile, auditory, olfactory, and gustatory), but rather are extended to express varieties of meanings in other semantic fields. The study also finds that the semantic field of vision in Gikuyu has a wider range of meanings than the other sense modalities.

The majority of the above studies on perception verbs were conducted in Indo-European and Asian languages. However, there is a paucity of such research in African languages, apart from a few like Gachugi (2018). Therefore, this study is aimed at investigating how Hausa perception verbs of vision are systematically extended to encode an array of conceptual metaphors. Meanwhile, in Hausa, there are some empirical studies conducted on various aspects of polysemy (see Batic, 2006; Almajir, 2013; Nagoda, 2017), but none of them comprehensively investigates the polysemy of Hausa perception verbs of vision. Therefore, in line with this recent development in cognitive linguistics, this study examines the systematic polysemy of Hausa perception verbs of vision from a cognitive-semantic perspective.



## 2.1 Background on Hausa Language

Hausa is a member of the Chadic language family, which itself is a constituent member of the Afro-Asian phylum (see Greenberg, 1963; Newman, 2000). In terms of number of speakers, it is the largest and most widespread of the Chadic language family, as it is spoken by over 41 million speakers (Paul et al., 2016). It is the first language of the ethnic Hausas and settled Fulanis in what one might call Hausaland proper, which covers the traditional emirates of Kano, Katsina, Zaria, Daura, and Sokoto, etc., in what is now Northern Nigeria and the Hausa-speaking areas of Southern Niger.

Hausa is the first language spoken in all West African countries. In Benin, Burkina Faso, Chad, Sudan, Cameroun, and Cote de Voire, Hausa is spoken as a second language as well. Hausa had probably been expanding for the past two hundred years, but its spread during the past half century has been dramatic, particularly in northern Nigeria (Newman, 2000, p. 37). Of all the Chadic languages, none has courted the attention of the global broadcasting giants like Hausa. Hence, Garba (2018, p. 152) identified 445 radio stations broadcasting in Hausa globally. Among this number of radio stations broadcasting in Hausa globally, 27 are international broadcasters delivering their programmes on the short wave (SW). This demonstrated Hausa's traditional position among its family members and the large number of speakers it commands, as well as its extension to a diaspora.

## 2.2 Theoretical Framework

The theoretical framework employed in this study is the Conceptual Polysemy Model proposed by Ibarretxe-Antunano (1999) and the Conceptual Metaphor Theory (CMT) propounded by Lakoff and Jhonsen (1980). The main assumption of the conceptual polysemy theoretical model is that lexical meaning extension occurred in the form of conceptual and gradable polysemy. Conceptual polysemy refers to conceptual mappings that take place between different domains of experience. Cognitive devices such as metaphor, metonymy, and the property selection process carry it out. While gradable polysemy states that extended meanings are obtained through the interaction of the different elements of a sentence, it establishes and classifies the importance of the semantic content of sentence elements in the creation of such conceptual polysemy in three different degrees of compositionality, namely: (i) unpredictable polysemy; (ii) verb-driven extensions; and (iii) arguments-driven extensions. While the Conceptual Metaphor Theory (CMT) views metaphor as understanding one conceptual domain in terms of another conceptual domain (see Lakoff & Jhonsen, 1980; Lakoff, 1987; Lakoff & Turner, 1989; Kovecses, 2010). A conceptual metaphor consists of two conceptual domains, in which one domain is understood in terms of another. The conceptual domain from which we draw metaphorical meaning to understand another conceptual domain is called the source domain, while the conceptual domain that is understood this way is the target domain. Therefore, against this background, this paper examines the systematic polysemy of Hausa perception verbs of vision from a cognitive perspective.

## 3. Methodology

The methodology employed for data collection in this study includes both primary and secondary sources of data. The primary source is participant observation, while the secondary source is literature materials. According to Creswell (2009, p. 178), "the research site and participants in qualitative research include the setting (where the research will take place), the actors or participants (who will be observed), the events (what the actors will be observed), and the process (the evolving nature of the events undertaken by the actors within the setting)." Market places, higher education institutions, government agencies, various people's joints, and other social places are some of the settings identified and visited by the researcher for data collection within the study area. While the sampled participants were Hausa, they were drawn from different backgrounds in terms of their age, gender, and status. However, the events observed by the participant observer are polysemous extensions of Hausa perception verbs when they are making interactions. Meanwhile, the literature materials consist of books, journal articles, dictionaries, and newspapers. However, the literal meaning of each perception verb was identified. While any other meaning that evoked polysemous semantic extension other than the literal meaning was also identified and collected.

## 4. Data Presentation and Analysis

In this section, the data on systematic (metaphoric) polysemous extension of Hausa perception verbs is presented and analyzed. A total of 21 Hausa linguistic expressions related to vision perception verbs are examined. Meanwhile, the perception verbs' metaphorical renditions are maintained in upper case. While the two levels of translation for them, an interlinear gloss and English equivalents, are also provided as they are put into sentences.

The Hausa perception verbs of vision are those verbs that belong to the visual sense modality. Hausa zero-grade verb *gani*, grade 1 verb *gaanàa*, grade 4 verb *gaanèe*, grade 1 verb *shidaa*, and grade 2 verb *duubàa* are the verbs. Consider the polysemous semantic extension of these Hausa perception verbs of vision below:

### 4.1 Systematic Polysemy of Hausa Perception Verb of Vision *duubàa*

Semantically, the Hausa perception verb *duubàa* is an agentive verb of perception that is related to vision. It is a subject-oriented verb that controlled the circumstances under which it occurred. The polysemous semantic extension of this verb is achieved through multiple conceptual shifts, all of which are related by extension. Consider the following examples:

1. likità yàa *duubàa* shì  
(3msg. COMPL see him)  
Physician examine him

SEEING IS EXAMINING

2. yàa je asibiti don yá *duubàa* mara laafiyàa  
(3msg. COMPL went hospital COMPL SUBJ see patient)  
He examines patient in the hospital

SEEING IS VISITING

3. yàa je makarantaa don yá *duubàa* sàakamakon jarrabawaa  
(3msg. COMPL go school COMPL SUBJ see result-GEN exam)

He went to school to check his examination result.

SEEING IS FINDING OUT

As we have observed in the above examples (1-3), the Hausa sensory perception verb of "vision *duubàa*" is polysemously extended. We can see that in (1), when polysemously shifted, the Hausa perception verb triggers the "seeing is examining" metaphor. This process of systematic polysemous extension is a typical instance of graduable polysemy (i.e., arguments-driven extension), a situation whereby the verb argument *likitaa* (physician) conceptually motivates the polysemous semantic shift of the verb. Thus, the perception verb "*duubàa*" and its argument functioned conceptually as grammatical units in the form of symbolic units, the meaning of which is conceptually grounded through a metaphoric link. However, in example (2), we have another variant polysemous semantic extension of the Hausa perception verb *duubàa*, in which its semantic shift conceptually evokes "SEEING IS VISITING" metaphoric polysemy. Similarly, this polysemous semantic shift is inferred not only because of the verb meaning but also because of the semantic content of the verb arguments, i.e., *asibiti* (hospital) and *mara laafiyaa* (patient), that co-occur with the verb in the sentence. Metaphorically, the perceptual activity of seeing conceptually corresponds with the physical activity of visiting. Moreso, in example (3), the Hausa verb for visual perception, *duubàa*, is polysemously extended, and this semantic extension triggers the "seeing is finding out" metaphor. This metaphoric polysemy is also motivated by the semantics of the verb arguments, i.e., *makaranta* (school) and *sakamakon jarrabawa* (exam result). Thus, the action of going to school correlates with the activity of seeing and metaphorically evokes "SEEING IS FINDING OUT." The semantics of the verb arguments motivate all of these graduable polysemous semantic extensions. Consider another polysemous extension of the Hausa perception verb *duubàa*, which metaphorically denotes "studying" in the example below:

4. *yàa ba nì aron littafinsa don nà duubàa*  
 (3msg. COMPL give me lend book-LINK POS COMPL see)  
 He lends me his book to read it

#### SEEING IS STUDYING

As the above example shows, the conceptual meaning of the perception verb *duubàa* is metaphorically extended through polysemic meaning extension. The "sense is studying" metaphor is invoked by this polysemous semantic shift. In other words, the meaning of this Hausa perception verb of "vision" is hereby polysemously extended as a result of the verb being conceptually composite with its arguments. Thus, the meaning is inferred not only because of the semantics of the verb *duubàa* but also because of the conceptual meaning of the direct object *littafii* (a book), which served as a verb argument. Thus, the source of metaphoric meaning extension is largely polysemic. Metaphorically, the act of studying a book is conceptually mapped with the act of seeing it, so an act of seeing something is also an act of perceiving it. Consider another systematic polysemous extension of the Hausa perception verb of vision, *duubaa*, which metaphorically denotes "searching" in the following sentence:

5. *an ùumarci Musulmii da su faara duubàa watan azùmii daga goobe*  
 (be. COMPL direct muslims PTC they start see month-GEN fast from tomorrow)  
 Muslims were directed to start searching for Ramadan crescent moon from tomorrow

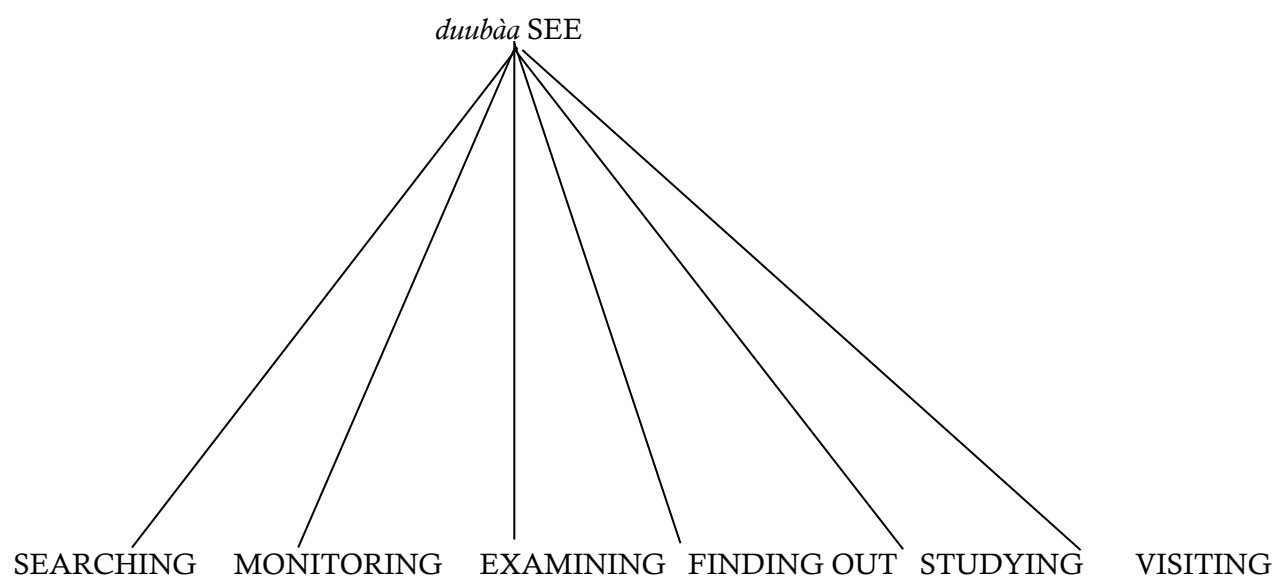
#### SEEING IS SEARCHING

In the above sentence (5), *duubàa*, the Hausa verb for "visual perception," has been polysemously extended and used to ascribe physical activity in terms of the mental perceptual activity, which appears to be motivated by the argument that immediately follows the verb, i.e., *watan azumii* (Ramadan crescent moon). Therefore, this polysemous extension of the verb meaning is realised through the semantic influence exerted by the verb argument, which, as a result, evoked the "seeing is searching" metaphor. This metaphoric polysemy is conceptually established based on the carryover between the two conceptual domains of the activity of "seeing" as a source and the activity of "searching" as a target domain. Thus, the activity of seeing or looking for something conceptually corresponds with the activity of searching. In another hand, the Hausa perception verb of vision, *duubàa*, is also extended to metaphorically denote "inspecting." Consider the following example:

6. *maalaman tsaftaa sunaa duubàa aikin tsaftar muhàllii*  
 (3m.pl. teachers hygiene PROG see work-GEN hygiene-LINK environment)  
 Hygiene officers are inspecting sanitation.

#### SEEING IS MONITORING

In the above sentence (6), the meaning Hausa perception verb of "vision" (*duubàa* is polysemously extended, which conceptually gives rise to the "seeing is monitoring" metaphor. Similar to the polysemous extension in Example 5, in this sentence also, the verb arguments play a semantic role in the polysemous extension and subsequent metaphoric conceptualization of the verb. Thus, the verb arguments *maalaman tsaftaa* (hygiene officers) and *aikin tsaftar muhalli* (sanitation) conceptually triggered projection mappings between SEEING as a source and MONITORING as a target in a situation whereby the perceptual activity of seeing corresponds with the physical activity of monitoring. This is corroborated with Sweetser (1990, p. 32), who argues that "the basis of the verb of vision extension is the fact that guarding or keeping control often involves the visual monitoring of the control entity, and the limited domain of physical vision is further analogous to the domain of personal influence or control." However, the systematic polysemous network of these Hausa visual perception verb meanings and extensions of *duubàa* is diagrammatically presented below:



#### 4.2 Systematic Polysemy of Hausa Perception Verb of Vision *gani*

This is a Hausa perception verb that can serve both as an agentive (subject-oriented) and experiencer (object-oriented) verb of vision and that extends to encoding metaphorical meaning through polysemous shift. Its contracted form is lexicalized as "*ga*" ("see". The Hausa perception verb of vision, *gani*, is polysemously extended to metaphorically denote "considering," "imagining," "foreseeing," "thinking," "consulting," "mental experience," and "taking care." Consider the following examples:

7. *yanàa ganin mutuncin mutàanee*  
(3msg. PROG see dignity-LINK people)  
he holds people with a high esteem

##### SEEING IS CONSIDERING

In the preceding example (7), the meaning of the Hausa perception verb *gani* is polysemously extended to conceptually evoke the SEEING IS CONSIDERING conceptual metaphor. The systematic polysemic extension of this perception verb is motivated by the semantic of the sentence argument *mutuncin mutàanee* (people's dignity) by means of an argument-driven extension in a typical instance of graduable polysemy. Thus, seeing is conceptualised as physical activity in terms of mental activity in a situation whereby two conceptual domains, i.e., seeing as a source and considering as a target, are correlated with each other by activity. Therefore, the metaphorical meaning is grounded not only because of the verb *gani* but also because of the semantic content of the verb complement, i.e., *mutuncin mutàanee*, that follows the perception verb *gani*, without which the metaphor "seeing is considering" could not be conceptualised in our mind. This is corroborated by Gisborne (2010), who argued that "in the case of perception verbs, the standard diagnostics of their polysemy are complementation and collocation." Consider another extension of the following sentence:

8. *inaa ganin gòobe zài zoo*  
(1.sgm-COMPL see-GEN tomorrow FUT come)  
I see him coming tomorrow

##### SEEING IS IMAGINING

In the example (8) above, unlike in (7), the polysemous extension of the Hausa perception verb of "vision" is a typical instance of "verb-driven extension," a situation whereby the conceptual structure of the verb influences its metaphorical conceptualizations, thus giving rise to "seeing is imagining" (mental activity). This instance of metaphoric conceptualization corroborated Sweetser's (1990, p. 33) proposition that "target domains for vision verbs commonly develop abstract senses of mental activity" as physical action is polysemously extended to the domain of mental activity (imagining). Meanwhile, in another extension, the Hausa perception verb of vision, *gani*, is also transferred to another sub-domain of mental activity, which metaphorically denotes "foreseeing." Consider the following illustration:

9. *ba nàa ganinsa a matsayin wanda zài aure ta*  
(NEG-1sgm- PROG see PREP position FUT marriage)  
I didn't see him as her husband

##### SEEING IS FORESEEING

In the above Hausa linguistic expression, the polysemous extension of the perception verb of "vision" (*gani*) conceptually evokes the "seeing is foreseeing" metaphor. Thus, the metaphor is based on the shared structural properties of the visual domain as a source and our ability to focus our attention to sense phenomena mentally. Therefore, the source SEEING is conceptually mapped to the source FORESEEING based on their perceived shared structural similarities. However, another extension of the Hausa perception verb of vision, *gani*, metaphorically denotes "consulting," as exemplified in the following example:

10. *yàa je asibiti don yà ga likità*  
(3msg. COMPL hospital COMPL SUBJ see doctor)  
he went hospital to consult a physician

##### SEEING IS CONSULTING

In the example (10) above, the polysemous extension of the Hausa perception verb of "vision" (*ga* a contracted form of *gani*) is conceptually motivated by the verb argument in the process of argument-driven extension and the context in which the verb occurs, which evokes the "seeing is consulting" metaphor. Unlike in example (1), in the extension of the Hausa perception verb of vision *duubàa*, which generated the "seeing is examining" metaphor, in the extension of this verb a distinct target domain of "consulting" is conceptually developed. Therefore, based on the conceptual mappings between the source activity of "seeing" and the target activity of "consulting," we can say that the physical activity of "seeing" a patient by the physicist corresponds with the mental activity of "consulting" a patient. Thus, the metaphorical meaning encoded by the verb is conceptually structured not only because of the perception verb "*ga*," but also because of the co-occurring verb elements that co-exist with the verb in the sentence and the context in which the verb occurs. However, in another extension, the Hausa perception verb of vision, *gani*, is polysemously extended to the domain of cognition, which metaphorically denotes "thinking." Consider the following example:

11. *inàa ganin yaa kamaatà ka ci gaba dà karaatuu*  
(1sg. see-GEN COMPL 2PSM eat forward PTC reading)  
I think you should pursue your studies

##### SEEING IS THINKING

The polysemous extension of the Hausa perception verb *gani* evokes conceptual metaphor. SEEING IS THINKING entails mapping the physical domain of vision with the mental process of thinking. This is instantiated by the Hausa linguistic expression *inaa ganin*, "I think." In the above sentence, the Hausa linguistic expressions did not reflect a perception in a directly perceived event by the sense of sight (i.e., the act of seeing) but reflected a characteristic of the things that are immediately detectable by cognitive mental processes in an indirectly perceived event (i.e., the act of thinking). The verb *gani* is used to describe mental perception rather than physical perception in this case, and the perception is not immediate or direct because it is based on the individual's mental processes. As a result, unlike in the other examples, the Hausa perception verb of "vision" (*gani*) in example 11 above occurred in an indirectly perceived event that did not have to be perceived through visual sense preceptory organs (eye), but rather through cognitive process, giving conceptual rise to "seeing is thinking" metaphoric polysemy; a sub-metaphor of "body as mind" general metaphor. Thus, the perceptive activity of seeing is mapped onto the mental process of thinking through a conceptual metaphoric process; hence, SEEING is a sub-part of action taken by the body (the eye), and THINKING is a sub-part of activity taken by the mind (mental activity).

These metaphors evoked by the above systematic polysemous extension of the activity-based Hausa perception verb of "vision," *gani*, are an instantiation of the general metaphor "body as mind," which entailed "seeing is thinking," "considering," "foreseeing," "imagining," and "consulting" sub-metaphors due to the type of mental activity the verb refers to this general metaphor of the Hausa verb of vision in the polysemous extension of the Hausa perception verb of vision, *gani*, conceptually generates the metonymy MENTAL VISION FOR PHYSICAL VISION (PERCEPTION) in a typical instance of metonymy from a metaphor-metaphonymic interface. On the other hand, the Hausa perception verb of vision, *gani*, served as an object-oriented experience verb of perception, which was polysemously extended to metaphorically denote "mental experience." Consider the example below:

12. *yanàa ganin taashin hankàlii a raayuwarsa*  
(3msg PROG see disaster-GEN PREP life-POS)  
He is experiencing trial in his life

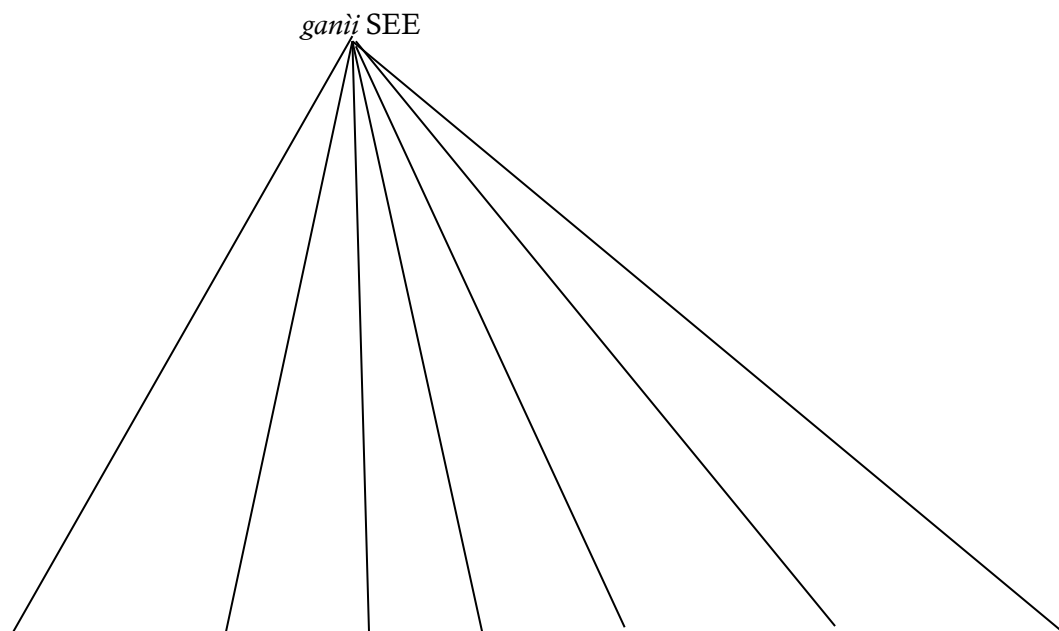
#### SEEING IS A MENTAL EXPERIENCE

Unlike in examples 7–11 in the above Hausa linguistic expression, the meaning of the perception verb, *gani*, is extended from an activity-oriented (subject-oriented) verb of perception to an experiencer-oriented perception verb. Thus, the extension is triggered by the verb argument *taashin hankàlii*, which gives rise to the source domain "MENTAL EXPERIENCE." As a result of the carryover between source mental experience and target seeing, we can create a projection mapping of someone seeing a disaster while mentally experiencing it. This metaphor is an instantiation of the body-as-mind perceptual metaphor; hence, the eye is a body part whose visual function is shifted to the domain of the mental one (mind). On the other hand, when the verb is also extended to conceptually denote "taking care," Consider the following example:

13. *gànee mìn yaaròn nan*  
(see me boy-GEN DEM)  
look after this boy for me

#### SEEING IS TAKING CARE

In the example (13) above, the Hausa perception verb of vision, *gani*, transforms to *gànee* and is polysemously extended from the physical domain to the perceptual domain, which gives rise to the "seeing is taking care" metaphor. Thus, our ability to physically focus our visual attention corresponds with our ability to mentally take care of something around us. The semantics of its arguments, namely the indirect object (IO) pronoun *mìn* and direct object (DO) pronoun *yaaro*, which serve as complements to the verb, motivate the verb's extension. The systematic polysemous extension network of the Hausa perception verb of vision *gani* is diagrammatically presented below:



#### CONSIDERING CONSULTING FORESEEING IMAGINING MENTAL EXPERIENCE TAKING CARE THINKING

In another development, the Hausa perception verb of vision, *gani*, is conceptually extended to the Hausa grade 1 verb *gaanàa*, which metaphorically denotes "meeting" and "interviewing," respectively. Consider the following examples:

14. *Shuugaban qasaa yàa gaanàa da shuugàbannin hafsoshin tsaroo*  
(leader-GEN country 3msg-COMPL see PTC 3pl leader-GEN rank-GEN defense)  
president has met with service chiefs

#### SEEING IS MEETING

15. *Shuugaban qasa zaï gaanàa dà 'yan jariiduu*  
(leader-GEN country PROG see PTC press)  
president will grant an interview with journalists

#### SEEING IS INTERVIEWING

Based on the examples above, it can be seen that the polysemy in the Hausa perception verb of "vision *gaanàa*" is not only obtained by the semantic content of the verb, but rather in conjunction with the semantic content of the arguments that accompany it in the sentence in which it occurs. Thus, the emergence of different senses from an interaction between the verb and its co-occurring sentence elements is not an isolated case. While in (12), the Hausa activity-based perception verb of vision, *gaanàa*, is polysemously extended and evoked SEEING IS MEETING, in (13) the extension of the verb triggered the SEEING IS INTERVIEWING metaphor. Thus, the mappings between source "seeing" and targets "meeting" and "interviewing" are conceptually grounded by correlation in experience. Thus, the event of "seeing" is accompanied by the events of "meeting" and "interviewing." Therefore, we can say that the Hausa perception verb of vision, *gaanàa*, occurred in a directly perceived event. Consider the following table, which summarises how the two domains correlate in the polysemous extension of *gaanàa* in a directly perceived event:

Table 1: Polysemous networks of Hausa perception verb of vision *duubaa*

Target: MEETING	← Source: <i>gaanàa</i> →	Target: INTERVIEWING
directly perceived through mental process	directly perceived through the sensory organ (eye)	directly perceived through physical/visual process

On the other hand, the reasons why we interpret these sentences with these metaphorical senses lie not only in the presence of the verb "*gaanàa*," but also in those sentence arguments that directly complement it, such as "*shugabannin hafsohin tsaroo*" (service chiefs) and "*yan jariiduu*" (journalists), which instantiate both "seeing is meeting" and "seeing is interviewing" metaphoric polysemy. Without either of these two arguments, it would be impossible to have metaphorical extensions like "meeting" and "interviewing," respectively. Therefore, we can say that the above polysemous extension of the Hausa perception verb of vision "*gaanàa*" and its ultimate conceptual metaphorical readings is an instance of argument-driven extension, a situation whereby the sentence arguments motivated the conceptual semantic extensions of the verb. On the other hand, in some cases, the Hausa perception verb *gaanàa* can shift from the semantic field of vision to the semantic field of tactile (i.e., touch), especially when the verb also occurs as an agentive verb of perception, triggering the TOUCHING IS TORMENTING perceptual sub-metaphor of the SEEING IS TOUCHING general metaphor because the latter conceptually entailed the former. Consider the following sentence:

16. 'yan sandaa sun *gaanàa* wà vâraawòn azàba  
 (police 3FPL-COMPLsee DAT thief-GEN torture)  
 police have tortured the thief

VISION → TOUCH

In the preceding sentence, the transfer of the Hausa perception verb *gaanàa* extended beyond the semantic field of vision and crossed into the semantic field of tactile (touch). This shows that the verb cannot only be extended (i.e., there is no restriction in the polysemous extension of the verb) to the perceptual semantic field of vision but also to the perceptual semantic field of touch as well. Meanwhile, the Hausa perception verb of vision, *gani*, is conceptually extended to the Hausa grade 4 verb *gaanèè*, which conceptually encodes both mental perceptivity and evidentiality and means "understanding" and "recognizing." Consider its polysemous extension in the sentences that follow:

17. Bala yàa *gaanèè* kàraatun  
 (3msg-COMPL understand lesson-GEN)  
 Bala has understood the lesson

SEEING IS UNDERSTANDING

17. Bala yàa *gaanèè* vâraawon  
 (3msg-COMPL recognize thief-GEN)  
 Bala has recognized the thief

SEEING IS RECOGNIZING

In the above example, the Hausa visual perception verb "*gaanèè*" is polysemously shifted to mean "understood" and "recognize." Thus, it gives rise to the "seeing is understanding" and "seeing is recognizing" metaphors, which are all conceptually derived from the polysemous extension of the verb. Meanwhile, conceptually, the domain of seeing is a subdomain of perception. Therefore, from the above conceptual polysemous extension of the Hausa perception verb of vision "*gaanèè*," we can say that the verb arguments in both (16 and 17) served the role of patient, an entity undergoing the effect of some action. Despite their different compositions, they are very significant in the semantic shift of the verb. Thus, this polysemic metaphor is an argument-driven one. As a result, the polysemous extension of Hausa perception verbs of vision *gaanèè* elicits various metaphoric polysemy, namely, SEEING IS UNDERSTANDING and SEEING IS RECOGNIZING.

The mappings between source "seeing" and targets "understanding" and "recognizing" are conceptually grounded by correlation in experience. Thus, the event of "seeing" is accompanied by the events of "understanding" and "recognizing." As a result, unlike the perception verb *gaanàa*, which appeared only in a directly perceived Hausa grade 4 event, the perception verb *gaanèè* appears in both a directly and indirectly perceived event. The former refers to the situation in which the perception verb occurred in states of affairs that are directly perceived immediately through sensory organs (eye), as illustrated in (15), whereas the latter refers to the situation in which the Hausa perception verb of vision *gaanèè* appeared in states of affairs that are conceived of and registered in the mind (i.e., understanding). Thus, unlike directly perceived events, indirectly perceived events do not have to be perceived through the sensory organs. Consider the following table, which summarises how the two domains, i.e., understanding and recognition, are correlated in the polysemous extension of the perception verb *gaanèè* in a directly and indirectly perceived event:

Table 2: Polysemous networks of Hausa perception verb of vision *gani*

Target: UNDERSTANDING	← Source: <i>gaanèè</i> →	Target: RECOGNIZING
indirectly perceived through intellection	directly perceived through the sensory organ (eye)	directly perceived through physical process
perceived through mental process		evidentially perceived through perceptual process

#### 4.3 Systematic Polysemy of Hausa Perception Verb of Vision *shâidaa*

*Shâidaa* is an evidential Hausa perception verb of vision that denotes a kind a justification a speaker has for making a claim, weather it comes from direct evidence or observation, evidence plus inference or inference with unspecified evidence. It's an agentive (subject-oriented) Hausa perception verb that occurs in a directly perceived event. Consider polysemous extension of the verb in the following sentences:

18. jama'a sun *shâidaa* xaurin aurensa  
 (3pl. people do witness marriage-POS)  
 people witnessed his wedding ceremony

SEEING IS WITNESSING

As the above example (19) shows, Hausa perception verb of vision *shâidaa* unlike other perception verbs so far examined encodes evidential meaning. The polysemous extension of this evidential perception verb denotes a kind of evidence or observation in a directly perceived event. Thus, it conceptually gives rise to SEEING IS WITNESSING metaphor. The physical activity of evidential seeing is mapped onto perceptual activity of witnessing. Meanwhile, when the verb is extended and followed by another argument it gives rise to different but related meaning by extension. Consider the following example:

19. naa hangee shi daga nesa amma ban *shâidaa* shi ba  
 (3msg -COMPL identify DIM brother-POS)  
 Audu identified his brother

#### SEEING IS RECOGNIZING

In the above example however, the Hausa evidential perception verb of vision *shâidaa* is polysemously extended and conceptually triggered SEEING IS RECOGNIZING metaphor. This metaphoric polysemy is achieved through argument-driven extension. Thus, the semantics of the verb argument *xan uwansa* (his brother) conceptually structured the target domain RECOGNIZING and which as a result mapped it with the source domain to conceptually evoked SEEING IS RECOGNIZING. While on another hand, when Hausa evidential perception verb of vision *shâidaa* occurred in a declarative sentence its meaning is extended to denotes a kind of justification with unspecified evidence in an indirectly perceived event. Consider the following example:

20. naa *shâidaa* cewa baabû abun bautaawaa dà gàskiyaa sâi Allah  
 (1.sg witness CMPL NEG thing-GEN worship-PTC truth except God)  
 I testify that there is no God except Allah

#### SEEING IS BELIEVING

Unlike in examples (19) and (20), where the Hausa evidential perception verb of vision, *shidaa*, is used in a non-assertive and directly perceived event, in this sentence the verb appears in a declarative and indirectly perceived event; thus, the act of evidential perception (seeing) encoded by the verb is metaphorically shifted from physical to mental, as the activity of seeing is not perceived with an eye but rather with the mind. Therefore, the physical act of seeing something with an eye (body) got mapped and corresponds with the mental act of believing it with a mind, which gives rise to SEEING IS BELIEVING, which is a sub-metaphor of the BODY-AS-MIND general metaphor of vision. Corroborating the above evidential meaning in the extension of the Hausa perception verb of vision, *shidaa*, Anderson (1986) aptly states that “perception verbs of vision denote a kind of justification a speaker has for making a claim, whether it comes from direct evidence or observation, evidence plus inference, or inference with unspecified evidence.” As a result, we can say that the metaphoric conceptualization of Hausa evidential perception verbs of vision, *shidaa*, arises from its evidential function in both the directly and indirectly perceived event in the examples (19-21). However, in this study, both the related and non-related extended meanings of the Hausa perception verbs of the sense of vision are analyzed. These are summarised in Table 3 below:

Table 3: Metaphoric polysemous extended meanings of Hausa perception verbs of vision

Sr. No.	Prototypical Meaning	Extended Meaning
1	Intellection or Mental Activity Group	- to imagine - to examine - to consider - to foresee - to study - to think - to understand
2	Social Group	- to meet - to visit - to interview
3	Assurance or Certainty Group	- to find out - to take care - to believe/make sure - to recognize - to monitor - to search
4	Other Meanings	- to witness - to experience/suffer

## 5. Conclusion

In the above study, it was found that conceptual metaphor served as a source of systematic polysemous extension of some selected Hausa perception verbs of vision. Moreover, it has been understood that in most cases, the systematic polysemous extension of these Hausa perception verbs of vision so far examined is an instantiation of what Grady (1997) called “correlation metaphors,” which arise as a result of the correlation of two domains (i.e., perception and cognition) in human experience. Thus, “seeing is thinking,” “seeing is understanding,” “seeing is examining,” “seeing is meeting,” “seeing is witnessing,” “seeing is taking care,” “seeing is evaluating,” etc. are instances of this kind of metaphor. Therefore, as sub-metaphors of the “BODY AS MIND” general metaphor of perception, we can conclude that the systematic polysemies of Hausa perception verbs of vision are instantiations of the primacy of sense modality in vision in Hausa. In other words, “the metaphoric transfer between visual perception and cognition is based on the correlation of these elements in the human experience of acquiring knowledge” (Mastusz, 2020, p. 100).

**Funding:** This study was not funded in any shape or form by any party.

**Conflict of Interest:** The authors declare that they have no conflict of interest.

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