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TYPOLOGICAL AND CONTRASTIVE ANALYSIS OF PERCEPTION/COGNITION MENTAL VERBS IN GENETICALLY RELATED IRANIAN LANGUAGE VARIETIES: PERSIAN, BALOCHI, SISTANI

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Abstract: Typologically, characteristics of mental verbs may differ cross-linguistically, and examining them comparatively/contrastively can be useful in second language acquisition, translation, and language contact studies. This paper studies perception/cognition mental verbs such as see, hear/know, and think in the genetically related language varieties of Persian, Balochi (mostly Sarhaddi dialects), and Sistani (a variety of Persian), all spoken in Iran and in contact with each other. Considering the influence of language contact and genetic relation, the analysis intends to identify their specific and metaphorical semantic characteristics and related similarities/differences among the three varieties. The data was obtained from fiction/non-fiction stories, media, and 20 consultants. The findings on visual perception verb 'see' show highly significant differences among the numbers of different concepts that the verb 'see' refers to in these varieties. The difference among the range of meanings that 'see' covers, and between the proportion of 'see' with core and with non-core meanings are also significant ($P < 0/05$). Cognitive verb 'think' meanings as activity, subjective opinion, true/false assumption, as well as metaphorical and unspecified usage of mental verbs, described in propositional/non-propositional semantic theories, are found. No direct equivalent for 'understand' in Balochi and major usage of 'understand' instead of 'know' in Sistani are observed. Despite constant contact, differences between Persian and Balochi, not Sistani, are larger. It seems Balochi is preserving its semantic characteristics, and the reasons for it can be cultural differences, literacy, and limited intergroup communication. The findings also show the possibility for language varieties from the same family to not always be totally influenced by each other via language contact.

Keywords: Typology, Mental verbs, Contrastive, Semantic theories, Persian, Balochi, Sistani.

چکیده: از نظر گونه‌شناسی، ویژگی‌های افعال ذهنی ممکن است در زبان‌های مختلف متفاوت باشند و بررسی تطبیقی/تقابلی آن‌ها می‌تواند در یادگیری زبان دوم، ترجمه و مطالعات تماس زبانی مفید واقع شود. این مقاله به بررسی افعال ذهنی ادراک/شناخت مانند «دیدن»، «شنیدن/دانستن» و «فکر کردن» در گونه‌های زبانی خویشاوند فارسی، بلوچ (با تمرکز بر گویش‌های سرحدی) و سیستانی (گونه‌ای از فارسی) می‌پردازد که همگی در ایران صحبت می‌شوند و با یکدیگر در تماس زبانی هستند. با در نظر گرفتن تأثیر تماس زبانی و خویشاوندی زبانی، این تحلیل به دنبال شناسایی ویژگی‌های معنایی خاص و استعاری این افعال و شباهت‌ها/تفاوت‌های مرتبط در میان این سه گونه زبانی است. داده‌ها از روایت‌های داستانی/غیرداستانی، رسانه‌ها و ۲۰ نفر مشاور گردآوری شده‌اند. یافته‌ها در مورد فعل ادراک بصری «دیدن» نشان‌دهنده تفاوت‌های معنادار در تعداد مفاهیم مختلفی است که این فعل در گونه‌های مورد بررسی به آن‌ها اشاره دارد. همچنین تفاوت در دامنه معانی تحت پوشش فعل «دیدن» و نسبت کاربرد آن در معانی اصلی و غیر اصلی نیز از نظر آماری معنادار است ($P < 0/05$). معانی فعل شناختی «فکر کردن» به عنوان فعالیت، نظر ذهنی، فرض درست/نادرست، و نیز کاربردهای استعاری و نامشخص افعال ذهنی که در نظریه‌های معنایی گزاره‌ای/غیرگزاره‌ای توصیف شده‌اند، شناسایی شده‌اند. در زبان بلوچی معادل مستقیمی برای «فهمیدن» وجود ندارد و در زبان سیستانی از «فهمیدن» به‌جای «دانستن» استفاده گسترده می‌شود. با وجود تماس زبانی مداوم، تفاوت‌های میان فارسی و بلوچی (نه سیستانی) بیشتر هستند. به نظر می‌رسد زبان بلوچی ویژگی‌های معنایی خود را حفظ کرده است که می‌تواند ناشی از تفاوت‌های فرهنگی، سوادآموزی و ارتباط محدود میان گروه‌ها باشد. یافته‌ها همچنین نشان می‌دهند که گونه‌های زبانی متعلق به یک خانواده زبانی الزاماً همواره به‌طور کامل تحت تأثیر یکدیگر از طریق تماس زبانی قرار نمی‌گیرند.

کلیدواژه‌ها: گونه‌شناسی، افعال ذهنی، تقابلی، نظریه‌های معنایی، فارسی، بلوچی، سیستانی.

I. Introduction

It is of insights of modern linguistics that users of a language have different types of linguistic knowledge. This understanding of language is reflected in diverse levels of analysis such as phonology, syntax, semantics, etc. Linguistic semantics, which is a very broad field of inquiry, deals with the study of the conventional meaning of linguistic expressions apart from consideration of the effect that pragmatic factors have on the meaning of language in use. It is the belief of many language philosophers that "the meaning of an expression is a certain sort of entity… a proposition"[1] and that a semantic theory "should assign to each expression some value-content-which determines a reference for that expression."[2]

What propositional content refers to is "the specific meaning or information conveyed by a statement or utterance, focusing on the truth conditions associated

[1] plato.stanford.edu/entries/**meaning**/, Stanford Encyclopedia of Philosophy

[2] plato.stanford.edu/entries/**meaning**/, Stanford Encyclopedia of Philosophy

with that statement."[3] Franks (2024) states that studying the meanings of sentences and the presumed relationships between those sentences is called propositional logic. He (ibid) also says that such studies are based on the propositional connectives which determine truth conditions of the sentences. As it is mentioned in Kintsch (1974), it is expected that propositional theory plays the role of basis for the improvement of the psychological process models, and it is necessary to see the differences between the inferences out of propositional knowledge which are reserved in memory and the ones out of representations of knowledge. Relating the non-propositional semantic theory, Guillemette (2021: I) indicates that although propositionalism "held view that intentional attitudes are fundamentally and predicatively propositional" there are some intentional attitudes such as *fear, love, hate*, that are essentially non-propositional, that is they neither have a relation to a proposition nor make references to objects. He (ibid) believes though "non-propositional attitudes are real mental states, I do deny that they are metaphysically independent from propositional ones."

The perception mental verbs are also used metaphorically along with their core meanings in our everyday life. The language phenomenon of metaphor can combine with the life matters such as time, emotion, action, etc. and associate perception verbs with other words that are not related to the five senses, for example *I can smell the rain*, and *The room smells of happiness*. Conceptual metaphor, as it is also mentioned by Zubaidi & Nasihah (2022: 268-271), was introduced by Lakoff and Johnson (1980); they believe that "metaphorical concepts are those which are understood and structured not merely on their own terms, but rather in terms of other concepts…conceptualizing one kind of object or experience in terms of a different kind" (Lakoff and Johnson, 1980: 195).

A theory of reference pairs expressions with certain values, but unlike a propositional semantic theory, it plays a role in the determination of "the truth-values of sentences"[4]. Tarskian truth theory (see Tarski 1944), referred to as another non-propositional semantic theory, tells that a sentence is true if and only if the object to which a subject refers is a member of the set of things which satisfy the predicate, e.g., "snow satisfies the sentence 'Snow is white'"[5]; the idea of Tarski was that "such a theory would define a truth predicate ('T') for the language."[6] In the Gricean view (see Grice 1989) an analysis of meaning is developed which "explains meaning in terms of the communicative intentions of language users"[7].

Semantics is also acquainted with other disciplines such as philosophy and psychology, which investigate creation and transmission of meaning: philosophy is the study of the nature of human thought, knowledge and the world, and psychology studies the mind, mental and emotional processes. Saeed (1997: 249; 2009: 278) cites from Jackendoff (1987) that based on the conceptual semantics, "describing meaning involves describing mental representations" and that meaning is kind of information which is mentally encoded by language users.

The meaning of a linguistic chain is constructed from the meaning of the words, to which the attention is paid in the lexical semantics. Mental verbs as part of the lexicon of any language have their own semantic characters which may differ cross-linguistically from a typological perspective. Viberg (2005: 121) explains that "the lexical typological profile of a language is an account of the distinctive character of its lexical structure in relation to other languages based on work in lexical typology and contrastive lexicology". The importance of the typological profile is attested in study of processes such as second language acquisition, teaching, translation, language contact resulting in language changes, etc. As for translation, Tashpulatova (2024: 114) believes that "Improving the works of translation, and raising their artistic and methodological level requires a comparative study of linguistic phenomena as a field" and "It is natural for lexical-semantic fields to be parallel in different constructed languages, but mental state verbs are an exception." Stok (2020), indicates that language specific features and pragmatic background of conversation can influence early understanding of the mental verbs in young learners.

Akbari *et al.* (2022) in the study of mental verbs, the cognitive category, state that today, in the comparison

[3] https://library.fiveable.me › key-terms › propositional-co..
[4] plato.stanford.edu/entries/**meaning**/, Stanford Encyclopedia of Philosophy
[5] http://philosophy.stackexchange.com/questions/14644/why-is-tarskis-semantic-theory-of-truth-formally- correct-and-materially-adequat
[6] plato.stanford.edu/entries/**meaning**/, Stanford Encyclopedia of Philosophy
[7] plato.stanford.edu/entries/**meaning**/, Stanford Encyclopedia of Philosophy

between languages, special language structures in the fields of lexicology, phonology, semantics, etc., are of special interest in the form of translation studies, education, comparative studies, etc. For example, it is possible to mention the studies of Qodrati (2024) on the semantic components, in which he has studied the concept of "nostalgia" in Persian and Russian, and he believes that the Persian language has a wide lexical diversity in semantic equivalence; and this should be taken as a consideration in the area of translation.

Related to acquisition or teaching, also Hacquard & Lidz (2021) state that as attitude verbs like *know*, *think*, and *want* give an account of internal mental states, language learners use pragmatic and syntactic cues to comprehend the different meanings of these mental verbs. The early knowledge of perception verbs in young language learners may not contain the mental state as part of the meaning, but later by the development of their syntax, they start to use mental verbs and more often in embedded frames (Davis & Landau, 2021). Some mental verbs such as *know*, *want*, and *love* are often used in informal conversation style and songs, perhaps with different metaphorical meanings, as Goyak *et. al.* (2021) indicate this, referring to the social actions. Regarding researches on mental verbs and second language learning discipline, the importance of recognizing the core and different metaphorical meanings of mental verbs in source and target languages should be taken into account.

This paper deals with the basic mental verbs in Persian which are contrastively compared with the genetically related language varieties of Balochi and Sistani all spoken in Iran. The selected language varieties for this study are two sister languages of Persian and Balochi (mostly Sarhaddi dialect), and Sistani as a variety of Persian. By this selection, the study has intended to see how similar to, or different from each other can be the specific semantic characteristics of mental verbs in the two sister languages, and in a language and its dialect variant; also, to see how far two sister languages and a language and its dialect may influence each other. In language contact, as Matras (2020) indicates, the domains of influence include language acquisition and production, conversation, typology, language change, etc.

Persian belongs to the Southwestern of the Iranian branch of the Indo-European language family, spoken mainly in Iran, Afghanistan and Tajikistan. Persian is a pluricentric language. Modern Persian which emerged during the 9th century, can be classified linguistically as a continuation of Middle Persian, the official religious and literary language in the period of Sassanian Iran, and itself a continuation of Old Persian, the language of the Achaemenids (Lazard, 1975, Windfuhr, 1987). As for Balochi, it is a Northwestern Iranian language although it is spoken in the southeast of the Iranian linguistic area today. Jahani and Korn (2009: 634) write that "[it] is likely that the original habitat of the Baloch was in the north-western part of the Iranian linguistic area, and that they migrated south-eastwards under pressure from the Arabic and Turkic invasions of the Iranian plateau". Balochi is the principal language of the Baloch in Balochistan of Pakistan, southeastern Iran and southern Afghanistan. Balochi is closely related to other Northwestern Iranian languages such as Kurdish (Jahani and Korn 2009: 634, 636; Jahani, 2019, Nourzaei, 2021). The Sistani variant is considered as a dialect of the standard Persian language which also belongs to the south western group of Iranian languages (Windfuhr, 1989: 248). A comparison of the present Sistani with Sakzi words shows that this variety is likely to be the survivor of the ancient Sakzi language (Mohammadi Khomak, 2001: VII; Okati, 2022). Sistani is spoken in Nimruz of Afghanistan, in the south of Turkmenistan, and in the southeast of Iran (Okati, 2018). It is also spoken in some other parts of Iran such as Zahedan, Sarakhs in Khorasan, the Golestan province, some part of Baluchistan in Iran and also in Baluchestan of Pakistan.

Considering the genetical relations and language contacts, the analysis in this study intends to identify: 1- language-specific characteristics of the mental verbs in these language varieties, 2- to show if in the three variants, there are significant differences among the range of the meanings the mental verbs cover and among the numbers of a certain verb which carries concepts other than its core meaning, and 3- whether the proportion of a certain mental verb with the basic core meaning to the ones with the different meanings are equal in all three language variants.

II. Literature review

D'Andrade (1987) distinguishes six major categories of mental field in his work, which is comprised of a diversity of mental processes and states. These categories are indicated by English verbals of: perceptions (see, look), belief/knowledge (know, think about), feeling/emotions, (feel sad, enjoy) desire/wishes (want to, wish), intentions (mean to, decide to), resolution (resolve to, make oneself). Usoniene (1999) states that the perception verbs can cover both the visual perception such as 'see', also called

direct or immediate perception which denotes immediate and momentaneous result, and the stimulus perception verbs like 'look, seem', called indirect or mediated perception as well. Montgomery (2002), referring to ostension paradigm, points out that the meaning of mental verbs derives from the relation between the verb and a corresponding referent. Shinzato (2004) points out that a mental verb refers to a mental process or a mental state such as 'think about' or 'know'. Montgomery (2005) indicates that mental verbs serve different practical functions in social contexts. Regarding the lexical organization, the verbal semantic fields are usually arranged typologically around unmarked verbs, called nuclear verbs, which have the same basic meaning in many languages, e.g., 'go', 'see', and 'know' are the most basic verbs of fields of Motion, Perception and Cognition respectively.

Viberg (2005: 126, 133) indicates that there are some patterns of mental verbs which are not universal. In these patterns of polysemy, which are language-specific, the meaning of the verb is semantically extended to cover another meaning, e.g. in most African languages there is an extension of 'hear' to 'taste' and 'smell' and in Swedish there is an extension of 'touch' to 'taste' and 'smell', e.g., in Swedish the perception verb *känna* which basically refers to the experience of touch can extend over the two other perception verbs: "*känna* 'feel', *känna smaken av* lit. 'feel the taste of' *känna lukten av* lit. 'feel the smell of'. He (ibid) also states that there are some cases in which the basic verbs of a semantic field such as cognition in different languages do not always correspond in meaning, e.g., when *veta,* the Swedish closest equivalent for 'know', co-occurs with the auxiliary *få* 'get' results in the meaning of 'find out'. Furthermore, among the mental verbs, some conceptual expressions such as 'understanding' are relatively based on metaphor or metonymy.

Papafragou *et al.* (2007) point out that mental contents are not readily inspected, for example, someone may smile but be a devil. Mental verbs belong to the same semantic field may have different implications, e.g., between cognitive verbs 'knowing' and 'thinking', 'knowing' implies that something holds true whereas 'thinking' can equally be true or false. Viberg (2008:2) points out that an activity is a controllable action but it is not resultative in cases such as verbs of perception, e.g., 'looking at', while 'see' is an experience which is an uncontrollable state. Viberg (2014) indicates that senses of vision, hearing, touch, etc. can have an extension of meaning over other senses and clarifies this feature by examples from Russian in which the verb 'hear' is used to denote the perception of 'smell'.

Fortescue (2001: 20) believes that all languages have at least a word with the core meaning of 'understand' which has several common conceptualizations by the help of metaphor or metonymy, e.g., 'understanding as seeing the light' or 'understanding as grasping' are seen in Chinese and French respectively. Related to the metaphors of other mental verbs such as the verb 'think', Palmer (2003: 270) in Tagalog, says that there are expressions which imply the metaphor that 'thoughts' are considered as objects and the 'mind' is a container for thoughts, e.g., the frame kα-__-αn in the word kα-isip-αn 'mind' denotes the possession of thought and the stem *isipan* reflects a mind as container metaphor; it can be seen in the expressions such as "*maramíng pumapasók sa isip-an* 'many thoughts entering the mind". Zubaidi & Nasihah (2022) report five concepts of metaphors including 'understanding' for the verb 'see' in their work.

III. Methodology

According to the typologically lexical organization in languages (Montgomery 2005), which reveals the variations in items such as meaning specified in this work, the focus of the propositional/non-propositional semantic analysis in this paper was a contrastive comparison of the mental verbs in Persian and the genetically related language varieties of Balochi (mostly Sarhaddi dialect) and Sistani, both spoken in Iran. The study was based on the corpus data, containing more than 500000 words (including slightly more Persian words as there were more sources in printed forms available), which were obtained from fiction and non-fiction stories and texts[8].

Most of the Persian sources in the data were of printed forms. As for the Balochi and Sistani data, since these varieties lack an orthography system of their own, there were neither adequate written forms such as novel, story, etc. nor translated into English forms of the few available stories built in these varieties. The few written texts found in these varieties were mostly in the form of poetry. The 20 Literate and illiterate Sistani and Baloch consultants also contributed in this article by

[8]Sincere thanks also to Dr. Behrooz Barjasteh Delforooz, University of Sistan and Baluchestan, for providing me some of the Balochi data.

their oral communications in the form of narrating stories. Oral texts have been provided (there were also texts in oral forms of literature which were in the form of poetry and prose), transcribed in IPA symbols, and translated into English as part of the data (as the italic form of [a] and [ɑ] are the same, *[a] [ɑ]*, [â] is used instead of [ɑ] to show their distinction in the italic forms of the examples). The Balochi and Sistani sources used in this paper were translated by the educated Baloch and Sistani consultants, as well as the author, who is a native Sistani in the province of Sistan and Baluchestan, Iran. The Statistical Analysis Software, SAS, version 9.2, and Chi^2 were used to perform the statistical analysis. Fisher's exact test was used for the analysis in the contingency table. The variety of the mental verbs, particularly in Balochi and Sistani, treated here was restricted to the ones found in the data. Considering the probable slight semantic differences between the applied mental verbs in the poetic forms and other literary works, such as novels, some examples of the poetic forms in both varieties have been used in this study. Based on the available mental verbs in the data, the analysis mainly focused on the semantic fields of perception and cognition.

III.1. The linguistic model

The linguistic field of perception is the domain of the five senses. A mental verb of perception can be a kind of activity that is controllable, or it can be an uncontrollable experience. In the phenomenon-based perception verbs, which have a neutral meaning of 'seem or appear', the phenomenon or stimulus is taken as subject, e.g. *The boy looked satisfied* (this type of perception verbs is not studied in this paper). In English, a general characteristic of the verbs of perception is that they are expressed with separate words, but it is not the same in all languages such as Swedish (see section 1-1 above). Another characteristic of perception verbs in different languages, say in English, is that there is a tendency in activities to have an oblique object marked with a preposition, e.g., *listen to* and *look at*. As the linguistic model, the basic semantic representations of the perception verbs (activity and experience) and the cognitions in English are displayed in the following table (adapted from Viberg 2008, Langacker 2008):

Table 1: **The basic grid for verbs of perception/ cognition in English**

Perception	**Activity**	**Experience**
Neutral	examine, check	perceive, notice
Sight	watch, look at	see
Hearing	listen to	hear
Touch	touch, feel	feel
Taste	taste	taste
Smell	smell	smell
Cognition category	**Relation**	**Example**
Memory	recognizing, recalling past information	Remember, recall, recognize
Thinking/Reasoning	Thinking, reasoning, considering ideas	Think, believe, understand, consider, assume
Knowledge/comprehension	Knowing or understanding sth.	Know, understand, realize, comprehend, be aware of
Mental states/conditions	Express mental states or conditions	Feel, think, doubt, believe, know, hope

IV. Corpus–based contrastive analysis

IV.1. Visual perception verbs

Persain:

A- Result and Discussion on: *didan* 'see'

In Persian, the nuclear verb of visual perception field is *didan* 'see' which is the prime equivalent of English *see*. This verb which is basically experience can be used to refer to perceptual activity, e.g., if the noun form of it, *did* 'sight', combines with the verb *zadan* 'hit', it results in *did zadan* 'look at' or 'peep through', which can be taken as an activity:

(1) *pesar dâʃt az poʃt=e panʤare* ***did mi-zad***

boy have.PAST.3sg from behind=EZ window sight DUR-hit.PAST.3sg

'The boy was **peeping through/ looking out of** the window'

Although it is common in many languages to use one verb in various sense modalities, the pattern of polysemy of *didan* 'see' is slightly different within this data, i.e. although it is not used straightforward for experiences such as *taste* or *smell* (i.e. the noun forms of *taste* and *smell* are also used with *see* simultaneously: *Bebin che booei mide?* **See** what **smell** does it have?), it can refer to the verbs 'hear' and 'feel' in some of its meanings (of course in some cases 'feel' can be translated to 'see' too). This kind of meaning extension is also reported by Viberg (2014, 2005) for Russian, Swedish, and some African languages:

(2) ***mi-bin-am*** *ke sorfe mi-kon-i*

DUR-see.PRES-1sg that caugh DUR-do.PRES-2sg

'I **see** (**hear)** you are coughing'

(3) *dast be-zan* ***be-bin*** *ʧeqadr narm-e*

hand IMP-hit.PRES IMP-see.PRES how much soft-be.PRES.3sg

'Touch it and **see (feel)** how soft it is'

The verb *didan* refers to many different meanings in the original texts some of them related to the other fields. But this is not all; as it is indicated by Sweetser (1990) cited in Viberg (2005) that in Indo-European languages there are extensions from 'see' to 'understand'/'think' and 'know', the verb *didan* 'see' in Persian, too, refers to other meanings such as 'understand' and 'feel' in both forms of activity and experience, e.g.:

(4) ***be-bin*** *ʧeqadr dâq-e*

IMP-see.PRES how much hot-be.PRES.3sg

'(**Touch** it and**) see (feel)** how hot it is'

In its basic meaning, *didan* refers to visual experience 'see' which accounts for 71.2% of the occurrences of this verb in the Persian original texts. It is also used to refer to cognitive uses such as 'know' and 'realize' 21.1%, and to other alternatives such as watch, believe, look, maybe, etc. 7.6%. It is also used to form compound verbs but loses its basic meaning of 'see' in these forms, e.g., *sezâ didan* 'penalty see' means 'to be punished'. Viberg (2008:19) points out that "SEE has a strong tendency to extend its meaning to cover social contact", for example the phrase *You should see a doctor* is one of the most cited expression of this use in English which refers to the social contact. In Persian, the verb *didan* can act as a verb of social contact and be used as an alternative to expressions such as 'meet' (where according to the context it is not just an act of 'seeing' but 'seeing and having communication with even shortly') which cover 1.4% of its occurrences in the original Persian texts in this study.

According to the propositional semantics, which pair expressions with the entities as their meanings, the basic meaning of the verb *didan* is 'see', i.e., perception through eyes, but other various meanings this verb refers to, somehow violates this definition of meaning. This can also be viewed by non-propositional semantic theories such as Tarskian which defines a truth predicate for language. According to Tarskian theory (Tarski 1944), predicates such as *sorfe râ didan* 'to see the cough' (see example 2), can be satisfied by many related subjects (pronouns, names, etc.), but the problem is the argument *sorfe* 'cough' as the direct object, which is not apparently satisfying the internal structure of the predicate ('to see the cough'), for 'cough' is inherently something to be heard. So, presumably language users understand these different usages of the mental verbs by the help of contexts and the speakers' intentions as Gricean program says (see Grice 1989). This can be stated for other mental verbs with the similar conditions and unspecified usage throughout the article. Table 2 gives an overview of the major meanings of Persian *didan* 'see'. Examples, showing the various uses of *didan* are given below.

Table 2: The major meanings of Persian didan 'see'

Total number	425
Major translations	*%*
see	71.2
realize/notice/observe	12
know/find out	9.1
meet	1.4
look	2.2
other alternatives	4

Examples of *didan* (Table 2) in various meanings:

a. Meaning 'see'

(5) *mâhi sijâh=e kuʧulu=râ ke* ***did-and***

fish black=EZ small=OM that see.PAST-3pl

'When they **saw** the little black fish'

(6) *u=râ tu=(j)e kâfe* ***na-did-e*** *bud-am*

PN.3sg=OM in=EZ café NEG-see.PAST-PSPT be.AUX.PAST-1sg

'I had not **seen** him in the café'

b. Meaning 'realize/notice/observe'

(7) *sob ke bidâr mi-ʃav-ad* ***mi-bin-ad***

morning that awake DUR-become.PRES-3sg DUR-see.PRES-3sg

ân hejvân âmad-e va raft-e

that animal come.PAST-PSPT and go.PAST-PSPT

'When he wakes up in the morning, he **realizes** that the animal has come and gone'

(8) ***mi-bin-ad*** *az dur ʒamin dâr-ad mi-larʒ-ad*

DUR-see.PRES-3sg from far earth have.PRES-3sg DUR-shake.PRES-3sg

'He **notices** that the ground is shaking in the distance'

(9) *age* ***did-am*** *xub kâr mi-kon-e*

if see.PAST-1sg well work DUR-do.PRES-3sg

'If I **observe** that he is working well'

c. Meaning 'know/find out'

(10) (mixâham) ***be-bin-am*** *donjâ ʧe xabar ast*

(I want) SBJN-see.PRES-1sg world what news be.PRES.3sg

'I (want to) **know** what is going on in the world'

(11) mi-xâh-am be-rav-am ***be-bin-am***

DUR-want.PRES-1sg SBJN- go.PRES-1sg SUBJ-see.PRES.1sg

âxer=e ʤujbâr koʤâ-st

end=EZ stream where-be.PRES.3sg

'I want to go to **find out** where is the end of the stream'

d. Meaning 'meet'

(12) *har do=tâ xâle=am=râ* ***did-e-am***

each two=CL aunt=PC.1sg=OM see.PAST-PSPT-1sg

'I have **met** both my aunts'

(13) *âxerin bâri ke u=râ* ***did-am***

last time that PN.3sg=OM see.PAST-1sg

'The last time I **met** him'

e. Other meanings

(14) *bâjad* ***sezâj-aʃ=***râ ***be-bin-i***

must punishment-3sg=OM SUBJ-see.PRES-2sg

'You must/ need to be **punished**'

(15) *film-hâ=i ke az=aʃ* ***did-e-am***

film-pl=IND that from=PC.3sg see.PAST-PSPT-1sg

'The movies of him that I have **watched**'

(16) *xod=aʃ ham be* ***ʧaʃm=aʃ*** ***ne-mi-did***

self=PC.3sg too to eye=PC.3sg NEG-DUR-see.PAST.3sg

ke ***ʧ****enin kâri be-kon-ad*

that such work SUBJ-do.PRES-3sg

'He did **not believe/expect** himself to do such a work'

(17) *pijáno=râ ham* ***did*** ***be-zan-ad***

piano=OM too sight SUBJ-hit.PRES-3sg

'He (can take a**) look at** the piano too'

(18) *je vaqt* ***did-i*** *estexdâm=aʃ kard-am*

one time see.SUBJ.PAST-2sg employ=PC.3sg do.PAST-1sg

'I **might** employ him'

(19) *mâ digar har* ***ʧe*** ***did-im*** *bas=e=mân ast*

PN.1pl then any what see.PAST-1pl enough=EZ=PC.1pl be.PRES.3sg

'We have **experienced** enough'

(20) *az* ***did=****e man*

from sight=EZ PN.1sg

'In my **opinion**'

There are also other words rather than *didan* in Persian, in form of metaphor, which refer to the verb 'see', e.g. ***ʧaʃm oftɑdan*** 'eye fall' which is inchoative (i.e. inceptive aspect of verb showing sudden start of an action), or *gaʃtan* 'going round':

(21) ***ʧaʃm=am*** *be u* ***oftâd***

eye=PC.1sg to PN.3sg fall.PAST.3sg

'I **saw** him'

(22) *mi-rav-am donjâ=râ* ***be-gard-am***

DUR-go.PRES-1sg world=OM SUBJ-go.around.PRES-1sg

'I go to **see** the world'

The perceptual activity of *negâh kardan* 'look do' is the equivalent of 'look' in English. Similar to 'look', this activity verb in Persian has an oblique object which is marked with the preposition *be* 'to'; this preposition can be omitted in some cases, e.g., when the object appears as a clitic on the verb:

(23) *tor=i* ***be*** *man* ***negâh kard*** *ke…*

way=IND to PN.1sg look do.PAST.3sg that…

'He **looked at** me in a way that…'

(24) *zir* ***ʧeʃm=i*** ***negâh=am kard***

under eye=ADV look=PC.1sg.to do.PAST.3sg

'He **looked at** me stealthily'

The verb *negâh kardan* 'look do' can be used to refer to the activity of *tamâʃâ kardan* 'watch do' (also to inspect, to examine) in low frequencies:

(25) *vaqti ke dâr-ad Qarizeje Asli'=râ* ***negâh mi-kon-ad***

when that have.PRES-3sg *Qarizeje Asli'*=OM look DUR-do.PRES-3sg

'When he is **watching** Qarizeje Asli

In addition, there are some expressions which have a closely related meaning to 'look', e.g., ***ʧaʃm*** *duxtan* 'eye sew', *xire* ***ʃ****odan* 'stare become', and *zol zadan* 'gaze hit', see examples (10) and (11):

(26) *did-am ke* ***xire ʃod-e*** *be=hem*

see.PAST.1sg that stare become.PAST.3sg-PSPT to=PC.1sg

'I saw that he **was staring** at me'

(27) ***zol mi-zan-ad*** *tu= (j) e* ***ʧeʃm=e*** ***ʃ****omâ*

gaze DUR-hit.PRES-3sg in=EZ eye=EZ PN.2pl

'He **gazes** at your eyes'

Balochi:

A- Result and Discussion on: *gindag/di:stin* 'see':

The nuclear verb of the visual perception in Balochi is the infinitive *gindag/di:stin* 'see'. Both forms of *gindag* and *di:stin* are used by the Baloch speakers but in the different dialects. Between the two, the verb *gindag* has a wider usage among the dialects than the verb *di:stin*, i.e., more dialects of Balochi have *gindag* as their perception verb 'see'. The perception verb 'see' in the Balochi data is mostly *gindag* and accounts for the highest portion of the occurrences which is 63.1%. The Balochi verb *gindag* is used to refer to the activity 'look' (in the imperative form) with a lower percentage of 17.1%. Unlike Persian (in which 'see' refers to a larger range of meanings), there are limited meanings such as 'hear/listen to' 5.2% (mostly in the poem form), 'believe', 'know', 'find', and 'feel' to which some of the *gindag* occurrences refer. As for the meanings of 'hear' and 'feel', it does not have an extension over these verbs to form another structure such as **ta ginday* ***ʃ****konay* 'you see hear', but it is just used as a simple verb which refers to the meaning of 'hear/listen to' in certain contexts. A low happening of verb *di:st*, the past form of 'see', is used to indicate the perceptual activity 'look' usually accompanying the adverb *deːm****ɑ*** 'already, before'. Table 3 represents the major meanings of the visual verb *gindag* 'see' in Balochi. The examples of these verbs are displayed below.

Table 3: The major meanings of Balochi gindag 'see'

Total	96
Major translations	*%*
see	63.1
look	17.1
find	10.5
hear/listen to	5.2
believe/know/feel	3.9

a. Meaning 'see'

(28) *ki mardum-****ɑ****n-****ɑ*** ***gind-ay***

that people-pl-OM see.PRES-2sg

'That you **see** the people'

(29) *i roːʧ-****ɑ*** *hiʧ* ***na-di:st-at***

DEM day-OM never NEG-see.PSPF.3sg

'He **had** never **seen** the sunshine,

b. Meaning 'look'

(30) *ta iːʃ(e)-r****ɑ*** ***b-gend***

PN.2sg DEM-OM IMP-see.PRES

'You **look at** this'

(31) *man i:ʃan-a de:ma* ***di:st-ag-on***

PN.1sg DEM.pl -OM already see.PAST-PSPT-1sg

'I have already looked at them'

c. Meaning 'find'

(32) *ahu lo:t-i:t o ma … gard-ent o* ***na-gind-ent***

deer want.PRES-3sg and PN.1pl … go.around.PRES-1pl and NEG-see.PRES-1pl

'He wanted deer and we have been looking for that but we **do not find** (any)'

(33) ***di:st-ay*** *wat-i baxt-a*

see.PAST-2sg self-GEN fortune-OM

'**Did** you **find (meet)** your fortune?'

d. Meaning 'hear/listen to'

(34) *gap man-i ba:z-an ta b-ja* ***gind-ay***

talk PN.1sg-GEN much-be.PRES.3pl PN.2sg IMP-come.PRES. see.PRES-2sg

'I have too much to say, come and **hear/listen to** them (come, you **will see/hear/notice** yourself)'

(35) *na:lag-an* ***gind-ay***

moan-pl.OM see.PRES-2sg

'You **hear/notice** the moan'

e. Meaning 'believe/know/feel'

(36) ***gind-ay*** *har ki bad kan-t pa wat-i kan-t*

see.PRES-2sg anybody bad do.PRES-3sg to self-GEN do.PRES-3sg

'Now you **believe/know** that one who behaves badly towards others, in fact harms himself'

(37) *mn-i* ***ʤeneko*** *yak* ***ʧiz-e*** ***di:st-et***

PN.1sg-GEN daughter one thing-IND see.PSPF.3sg

'My daughter had **known** something'

(38) ***a:t-a*** ***di:st-e*** *ki* ***iʃi*** *mozzur-e vafadar-ent*

come.PAST.3sg-PSPT see.PAST.3sg-PSPT that DEM servant-IND loyal-be.PRES.3sg

'He came and **realized** that this was a loyal servant'

(39) *qam* ***aʤab*** ***gind-on*** ***ba*** *del o* ***ʤan***

sorrow surprise.much see.PRES-1sg with heart and soul

'I **feel** much sorrow with my soul and heart'

In Balochi, similar to Persian, there are some other words rather than *gindag* which refer metaphorically to the meaning of 'see', e.g., *ta* 'behold (see)', ***ʧam kapt*** 'eye fall' which is inchoative (i.e. inceptive aspect of verb showing sudden start of an action):

(40) ***ta*** *yak malang-e* ***niʃt-a***

behold a dervish-IND sit.PSPT-3sg

'**Behold (see)** a dervish has sat' (***ta*** also means 'you')

(41) *mn-i* ***ʧam kapt*** *be asp-a*

PN.1sg-GEN eye fall.PAST.3sg to horse-IO

'I **saw** the horse' (***ʧam kapt*** 'eye fell')

The Balochi perceptual activity of *se:l kan* 'look do' or *se:y kan* 'look do' is the equivalent of 'look' which almost accounts for 81.2% of the occurrences of this verb in the original texts. The rest (18.7%) has an extended meaning of 'paying attention' or communicative meaning of 'you know', e.g.:

(42) *tela o asp-a* ***se:l kan***

Gold and horse-OM look do.IMP.2sg

'Look at the gold and the horse'

(43) ***iʃ****(e)-ra* ***se:l kan*** ***a****t-a*

DEM-OM look do.IMP.2sg come.PSPT.3sg

pa n-i badeʃahij-a gept-in-a

for PN.1sg-GEN monarchy-GEN get.PAST-INF-OBL

'You **know**; he has come to get the monarchy from me'

Sistani:

A- Result and Discussion on: *dida:* 'see':

The nuclear verb of the visual perception in Sistani is *di:da:* 'see'. The most frequent use of *di:da:* in Sistani is 'see' which accounts for 71.4% of the occurrences of this verb in the texts. Like Persian, this verb is used to refer to the several different meanings which are partly the same as those in Persian. It refers to the perceptual activity of 'look' estimated 4% (it can also be translated into 'see' but the meaning is 'looking at'), and to cognitive meanings such as 'know', 'realize', and 'notice' 6.8%. Other uses such as 'find out', 'find', 'hear', 'believe', 'experience', etc. form 17.8% of its happening

in the original texts. The noun form of the verb *diːdaː*, *did* 'sight' can combine with the preposition *daːr* 'in' and the verb *ʃtaː* 'become' to carry metaphorically the meaning of 'see', e.g.:

(44) *goːrexaːr* ***daːr did=e*** *rostaːm* ***meː-ʃo***
zebra in sight=EZ Rostam DUR-become.PRES.3sg
'Rostam **sees** the zebra'

Table 4 represents the major meanings of the visual verb 'see' in Sistani. The examples of these verbs are also displayed.

Table 4: The major meanings of Sistani diːdaː 'see'

Total	147
Major translations	*%*
see	71.4
look	4
find	3.4
notice/realize	6.8
find out	5
other alternatives	9.4

Examples of *diːdaː* (Table 4) in various meanings:

a. Meaning 'see'

(45) *alâːm=e* ***bdiːd-e***
sign=IND see.PAST-3pl
'They **saw** a sign'

(46) ***m-bin-a*** *pesar=e* *ʤavâːn=e* *raʃid=e* *bâːl=e* *koː* *ast-a*
DUR-see.PRES-3sg boy=IND young=IND tall=IND up=EZ mountain be.PRES-3sg
'He **sees** a young tall boy up on the mountain'

b. Meaning 'look'

(47) *b-ja-eː* *ʤaːm* *ʃe* ***biːn-e*** *in=a*
SUBJ-come.PRES-3pl gathering become.PRES.3pl see.PRES-3pl DEM=OM
'(for) They come to gather (and) to **look** at it'

(48) *mâ* *m-xâː-e* *aːros=a* ***biːn-e***
PN.1pl DUR-want.PRES-1pl bride=OM see.PRES-1pl
'We want to **look** at (see) the bride'

c. Meaning 'find'

(49) *hiʧi* *daːr bjâːvo* ***diːd-a*** ***n-me-ʃa***
nothing in desert see.PAST-PSPT NEG-DUR-become.PAST.3sg
'Nothing **was found** in the desert'

(50) *kâːrd=e=xâ* *daːr=e* *kaval(e)* ***n-diːd-o***
Knife=EZ=self inside=EZ watermelon NEG-see.PAST-1sg
'I **did not find** my knife in the watermelon'

d. Meaning 'notice/realize'

(51) ***bdiːd-e*** *ke i attâ das=xâ va taːʃt na-graft-a*
see.PAST-3pl that DEM even hand=self to tray NEG-get.PSPT-3sg
'They **noticed** that he even did not get the tray with his hands'

(52) *yaghâːra* ***m-biːn-a*** *ke i ʃeːr paʃt=e* *sar=n-a*
suddenly DUR-see.PRES-3sg that DEM lion behind=EZ head=PC.3sg-be.PRES.3sg
'Suddenly he **realizes** that the lion is behind him'

e. Meaning 'find out'

(53) *meː-r-a* *roː* *m-gir-a* ***biːn-a*** *i* *eːvo* *ke-na*
DUR-go.PRES-3sg bend DUR-get.PRES-3sg see.SUBJ-3sg DEM animal who-be.PRES.3sg
'He goes and hide himself to **find out** what is this animal'

f. Other meanings

(54) *bg-a* *na râːst=e* ***n-diːd-o***
say.PAST-3sg no truth=IND NEG-see.PAST-1sg
'She said: no, I **did not hear** a true word'

(55) ***bdiːd-i*** *va ʧe* *ʃirini bʉ*
see.PAST-2sg to what sweet be.PAST.3sg
'Now you **believe** (**know**) that how sweet it was'

(56) *sâːl-âː=(j)e* *sâːl-a* *ke* *o=na* ***n-diːd-a***
year-pl=EZ year-be.PRES.3sg that PN.3sg=OM NEG-see.PSPT-3sg

'It is years that he **has not met** him' (It is a long time since he last met him)

(57) *mâ o roːz-a=ra* ***diːd-a***
PN.1pl DEM day-pl=OM see.PSPT-1pl
'We **have experienced** those days'

In Sistani, there are some other words rather than the perception verbs which are used metaphorically to refer to the verb 'see', e.g., ***ʧaːʃ*** aːftidaː 'eye fall' which is inchoative (i.e. inceptive aspect of verb showing sudden start of an action), dreʧ 'face', and *tavâːre* 'whether', e.g.,

(58) ***ʧaʃi(j)=o*** *va kaʃ* ***bjaftid-ak***
eye=PC.3sg to shoe fall.PAST-3sg
'He **saw** the shoe'

(59) *roːbâ xe i* ***dreʧ*** *meː-na*
fox with DEM face DUR-do.PRES.3sg
'The fox **sees** (faces) him'

(60) b-ra-eː *vâː da-eː* ***tavâːre*** *on* ***ʤa*** ***ʧ****ez-j-a*
IMP-go.PRES.2pl open give.PRES.2pl whether there what-be.PRES.3sg
'Go and dig it (the cave) to **see** what is in there'

The dominant translation of the activity verb *seː ko* 'look do' or *ng* ***a*** *ko* 'look do' is 'look' having the object marked with the preposition of *va* 'to'. In a low percentage, it refers to the communicative meaning of 'you should take notice /be aware':

(61) *yakk=e* ***va*** *i taʃt=e tlâ* ***ngâː na-ka***
one=IND to DEM tray=EZ gold look NEG-do.PAST.3sg
'Nobody **looked at** the tray of gold'

(62) ***seː ko*** *yag harf=e me bgoft-o bad-i=(j)o bxâːrd-ak*
look do.PRES.2sg a talk=IND PN.1sg say.PAST-1sg bad-EZ=PC.3sg eat.PAST-3sg
'You **should take notice /be aware** that I have told him something and he became upset'

IV.1.1. Statistical analysis

As mentioned above, the verb 'see', which was the most frequent perception verb in the data, is selected as sample to be statistically analyzed. Fisher's exact test is used for the analysis in the following contingency table. The total numbers of the verb 'see' occurred in the data along with the total numbers of the meanings it refers to in each language, numbers of the core meaning and numbers of the different meanings 'see' carries are represented in Table 5:

Table 5: Contingency table of the frequency distribution of 'see' in Persian, Sistani, Balochi

Total numbers of 'see'	Total numbers of meanings 'see' refers to	Numbers of 'see' carrying core meaning	Numbers of 'see' carrying different meanings	Verb 'see' / Language variety
425	16	303	122	**Persian**
147	11	105	42	**Sistani**
96	9	61	35	**Balochi**

The analysis of 668 verbs of 'see' reveals that there is a very significant difference among the numbers of the verb 'see' carrying different meanings in each language variant: $X^2 = 70.43^{**}$ ($P < 0.01$). The range of meanings that the verb 'see' refers to in Persian is 16, in Sistani is 11, and in Balochi is 9. The analysis shows that there is also a significant difference among these ranges: $X^2 = 2.16^{*}$ ($P < 0.05$). The proportion of this verb with core meaning to the ones referring to the different meanings are almost the same in the three language varieties but the observed differences among them are significant: $X^2 = 2.38^{*}$ ($P < 0.05$).

IV.2. Non-visual perception verbs

In this section, as the related verbs are not many in the three varieties, they are described together under one title.

A- Result and Discussion on non-visual perception verbs (Persian, Balochi, Sistani) :

Hear: The verbs of *ʃenidan, oʃkenag, and aːʃnidaː* in Persian, Balochi, and Sistani, respectively, are the unmarked verbs of perception which have a basic meaning of 'hear' in English. In all three language varieties these verbs can also be used to attract the attention of the listener while speaking, e.g. by asking 'do you **hear** what I am saying?' which actually means 'are you **listening to** me?' or 'do you understand what I am saying?'; this question in these languages is shown as the followings:

Persian:

(63) ***mi-ʃnav-i*** ***ʧ****i mi-g-am*
DUR-hear.PRES-2sg what DUR-say.PRES-1sg

'(Do you) hear what I am saying'

Balochi:

(64) *ta* ***oʃken-ay*** *man* ***ʧe=a*** *goʃ-in*

PN.2sg hear.PRES-2sg PN.1sg what=VC say.PRES-1sg

'(Do) you hear what I am saying'

Sistani:

(65) ***m-(j)aʃn-i*** ***ʧez*** *me:-g-o*

DUR-hear.PRES-2sg what DUR-say.PRES-1sg

'(Do you) hear what I am saying'

In Sistani and in Persian, the verb 'hear' can sometimes be combined with the noun *bo/bu* (Sistani/Persian) 'smell' to refer to 'notice the smell of something'; it can be considered metaphorically as 'hear' having somehow an extension over 'smell' in these two language varieties; an example in Sistani:

Sistani:

(66) ***bo*** *mâ:i* ***aʃnid-a*** *ke omd-a*

smell fish hear.PAST-3sg that come.PSPT-3sg

'(He) has come because (he) has **noticed the smell** of the (cooked) fish'

Touch: The verb 'touch' is the equivalent for *lams kardan* in Persian which is only used in very formal situations, instead, the expression *dast* 'hand' *zadan* 'hit' or *dast* 'hand' *keʃidan* 'pull' is used in all other situations. In Balochi and Sistani, expressions similar to the Persian ones are used to refer to the verb 'touch', e.g.:

Persian:

(67) ***dast be-zan*** *be in maxmal tâ narmi=(j)aʃ=râ hes kon-i*

hand IMP-hit.PRES.2sg to DEM velvet for softness=PC.3sg=OM feel do.PRES-2sg

'**Touch** this velvet to feel its softness'

Balochi:

(68) ***ɑ****-i* *puz-****ɑ*** ***dast ma-ʤan***

DEM-GEN nose-OM hand NEG-hit.PRES.2sg

'**Do not touch** his nose'

Sistani:

(69) *i=na* ***da:s(e)*** ***b-za*** *va* ***ʧe*** *garmi-(j)a*

DEM=OM hand IMP-hit.PRES to what warmness-be.PRES.3sg

'**Touch** this and feel how warm it is'

Feel: The perception verb of 'feel', which can roughly be reworded as 'experience an emotion', also somehow referring to 'touch' in activity form, is not always the equivalent of *ehsâs kardan* 'feel do' or *hes kardan* 'feel/sense do' in Persian (57.1%), i.e. some cognitive verbs such as 'notice' and 'think/guess' (42.7%) can accounts for the verb *ehsâs kardan* 'feel do' in some occasions. In addition, there are contexts in which a zero occurrence of *ehsâs kardan* 'feel do' can be translated into the verb 'feel'. Table 6. represents the frequencies of this verb in Persian.

Persian:

Table 6: The major meanings of Persian ehsâs kardan 'feel do'

Total	34
Major translations	*%*
feel	57.1
other alternatives	42.7

Examples of *ehsâs kardan* (Table 6) in various meanings:

a. Meaning 'feel'

(70) *garmi=(j)e âftâb=râ bar poʃt=e xod* ***hes mi-kard***

warmness=EZ sunshine=OM on back=EZ self feel DUR-do.PAST.3sg

'She **was feeling** the warmth of the sunshine on her back'

(71) ***ehsâs=e*** *xodemâni bud-an* ***be-kon-ad***

feel=EZ intimate be.PAST.3sg-INF SUBJ-do.PRES-3sg

'S/he would get a **feeling** of intimacy'

(72) *age sard=aʃ* ***bâʃ-ad (Ø)*** (Ø = zero occurrence or absence of *ehsɑs kardan*)

if cold=PC.3sg SUBJ.be -3sg

'If he **feels** cold'

b. Other alternatives

(73) ***ehsâs mi-kon-ad*** *ke xeili* ***ʧiz*** *sar=aʃ mi-ʃav-ad*

feel DUR-do.PRES-3sg that very thing head=PC.3sg DUR-become.PRES-3sg

'She **thinks** she knows too much'

(74) *hiʧ vaqt âmad-an=aʃ=râ* ***hes ne-mi-kard-am***

nothing time come.PAST.3sg-INF=PC.3sg=OM feel NEG-DUR-do.PAST-1sg

'I never **noticed** his coming'

(75) *hamin ke* ***ehsâs kon-ad*** *mo:ʤud=e mofid=i ast*

as soon as feel do.PRES-3sg creature=EZ useful=IND be.PRES.3sg

'As soon as he **realizes** that he is a useful entity'

(76) *gâhi* ***hes kon-im*** *az ʤâ=i sedâ(j)=e nâle-hâ(j)=e*

sometimes feel SUBJ.do.PRES-1pl from place=IND sound=EZ moan-pl=EZ

xafif=e zan=i mi-â-(j)ad

weak=EZ woman=IND DUR-come.PRES-3sg

'Sometimes we (may) **hear** weak moaning of a woman coming from somewhere'

There are verbs of *e:sɑ:s kanag* 'feel do' and *e:sâ:s karda:* 'feel do' in Balochi and Sistani respectively which have apparently arrived in these languages from Persian. It seems that the expressions *pekr kanag* 'think do' and *fekr karda:* 'think do' represent the meaning of 'feel' in the two language varieties. As for Balochi and Sistani, because of the lack of enough data, it can only be commented on the zero forms: zero forms can be taken as the counterparts of 'feel' in some cases in the original texts, i.e. the zero form (Ø- no appearance) of *e:sɑ:s kanag* 'feel' (Balochi) can be translated into 'feel/become' in English sentences (*del* 'heart' is used metaphorically in example (78)):

Balochi:

(77) *ʒand o ʒul but(Ø)*

tired and exhausted become.PAST.3sg

'He **felt/became** very tired'

Sistani:

(78) *del=(j)o var-o m-so:z-a (Ø)*

Heart=PC.3sg for- PN.3sg DUR-burn.PRES-3sg

'He **feels** sympathy for him'

(79) *ʃa:qâl goʃna me:-ʃ-o (Ø)*

jackal hungry DUR-become.PRES-3sg

'The jackal **feels/becomes** hungry'

Taste/Smell: There is an interesting point related to 'taste' and 'smell' in all languages of the world. Since 'taste' and 'smell' are hedonistic senses, they are associated with pleasant (good) and unpleasant (bad) feelings. In some languages these verbs carry one of these feelings within themselves and to refer to the opposite feeling, it must be specified explicitly with certain words, e.g. in Swedish, the default interpretation for *lukta* is 'smell bad' but if the smell is positive the word *got* 'good' should be added (Viberg 2008:35). In English, also, one of the default meanings of 'smell' is 'stink' (smell bad): *It smells* 'It stinks', but *It smells sweet/good* means that 'It is not smelling bad'. The verbs ***ʧeʃidan*** 'taste', *bu keʃidan* 'smell pull', *bu kardan* 'smell do', and *bu dâdan* 'smell give' are of other perception verbs in Persian. The verb ***ʧeʃidan*** refers to both abstract (experience) and concrete (activity) meaning of 'taste', e.g.:

Persian:

(80) *bâjad* ***be-ʧeʃ-ad*** *azâb=e tanhâi=râ*

must SUBJ-taste.PRES-3sg anguish=EZ loneliness=OM

'He should **taste (feel)** the anguish of loneliness' (experience)

(81) *na ke xeili* ***ʧeʃid-i*** *âqâ=(j)e mohâfezekâr*

no that very taste.PAST-2sg sir=EZ conservative

'You did not even **taste** (it) Mr conservative' (activity)

The equivalent of 'smell' in Persian, *bu*, refers to this meaning for a high portion of 91.6% and the rest (8.3%) is used to indicate the meaning of 'know' or 'notice' with somehow implying suspiciousness. In general, in Persian the same as in Swedish (Viberg 2008) for example, the default translation for verb *bu dɑdan* 'smell give' is 'smell bad' and the expression *xub* 'good' is added to this verb to specify the meaning of 'smell good', e.g.:

Persian:

(82) *lebâs-hâ=(j)am=râ* ***bu mi-keʃ-i***

clothes-pl=PC.1sg=OM smell DUR-pull.PRES-2sg

'You **smell** my clothes'

(83) *in mâhi* ***bu mi-dah-ad***

DEM fish smell DUR-give.PRES-3sg

'This fish **smells (bad)**'

(84) *in qazâ* ***bu=(j)e xub=i mi-dah-ad***

DEM food smell=EZ good=IND DUR-give.PRES-3sg

'This food **smells good**'

(85) *vaqti* ***bu be-bar-ad (be-ke-ʃad)***

when smell SUBJ-take.PRES-3sg

'When s/he **knows (**or **notices /becomes suspicious of)**

There is an expression in English, *smell a rat*, which carries the same metaphoric meaning of 'smell' in the example of (85) very above: *He smelled the rat* 'He became suspicious/He was suspicious of…'.

In Balochi also, the verb *mizzag kanag* 'taste do', also the form ***ʧaʃag*** borrowed from Persian ***ʧeʃidan*** 'taste', has experience and activity meanings similar to the other two languages, e.g.:

Balochi:

(86) *azɑb=a tanai=(j)a* ***b-ʧaʃ-it***

anguish=EZ loneliness=OM SUBJ-taste.PRES-3sg

'**Taste (feel)** the anguish of loneliness' (experience)

The verb *bo dɑten* 'smell give' in this language implies the meaning 'bad', i.e. for referring to having 'good smell', an adjective should be added, e.g.:

Balochi:

(87) *i goʃt-ɑ* ***bo=(j)a dan-t***

DEM meat-pl smell=VC give.PRES-3sg

'This meat **smells (bad)**'

(88) *qazɑ* ***waʃ-en bo=(j)a dan-t***

food good-ATTR smell=VC give.PRES-3sg

'The food **smells good**'

The state of the verbs ***ʧaʃida:*** 'taste' and *bo kaʃida:* 'smell pull' or *bo dâ:da:* 'smell give', in Sistani is almost the same as those in Persian, e.g.:

Sistani:

(89) *bâjad dard=e tan'ɑ:i=ra* ***bʧaʃ-a***

must pain=EZ loneliness=OM taste.IMP-3sg

'He should **taste (feel)** the pain of loneliness' (experience)

(90) *qazâ:=ra* ***bʧa:ʃ*** *tavâre ʃo:r-a* food=OM taste.IMP.2sg whether salty-be.PRES.3sg

'**Taste** the food to see if it is salty' (activity)

(91) *i qazâ* ***bo: me-d-a***

DEM food smell DUR-give.PRES-3sg

'This food **smells (bad)**'

As for the verb 'smell' in Sistani, when it refers to the meaning of 'notice/know' in few occurrences, the perception verb *a:ʃnida:* 'hear' combines with the noun form of 'smell', *bo*, to carry the metaphoric meaning, e.g.:

Sistani:

(92) *gorba* ***bo*** *goʃt* ***a:ʃnid-a*** *ke omd-a*

cat smell meat hear.PSPT-3sg that come.PAST-3sg

'The cat has come because it **has smelled** the meat'

IV.3. Cognitive verbs

Cognitive verbs are one of the subcategories of mental verbs which refer to mental processes or mental states. Knowledge is the lowest level in the cognitive domain and involves the remembering of already learned information. It has been noticed that among the sense modalities, e.g. 'see' or 'hear', there is a tendency to have an extension of cognitive meanings, e.g. in Indo-European languages there are extensions from 'see' to 'understand'/'think' and 'know' (Sweetser 1990 cited in Viberg 2005:132). In this section the cognitive verbs of *dânestan* 'know', *fekr kardan* 'think do', and *fahmidan* 'understand' in Persian and their equivalents in Balochi and Sistani will be represented.

A- Result and Discussion on cognitive verbs in Persian:

Know: The verb 'know' is the nuclear and the most frequent cognitive verb in many languages. Generally, in Persian, the verb *dânestan* has the expression 'know' as its most equivalent in the translations, but in the reverse form, 'know' and *dânestan* do not always correspond in meaning, e.g. the 'know' in the following sentences is translated to *ʃenâxtan* 'recognize' which shows the social contact, and *balad budan* 'learned be', in addition to 'know/be able to', which indicates knowing kind of skill connected to mental and physical ability:

(93) 'I **know** English'

man engelisi ***mi-dân-am*** (literal translation)

PN.1sg English DUR-know.P RES-1sg,

or *man engelisi* ***balad-am***

PN.1sg English learned-1sg

(94) 'I **know** him'

man u=râ ***mi-ʃenâs-am***

PN.1sg PN.3sg=OM DUR-recognize.PRES-1sg

(95) 'I **know** working with computer'

man ***balad-am*** *bâ kâmpiuter kâr kon-am*

PN.1sg learned-1sg with computer work do.PRES-1sg

In the original Persian texts, the verb *dânestan* is translated with 'know' in a great portion of its occurrences which is as many as 95.2%. The rest, which is 4.5%, is translated into 'find out' and other meanings; in the meaning of 'find out' the verb is usually accompanies the expression *bâjad* 'should':

(96) *bâjad* ***be-dân-ad*** *ke dust=aʃ koʤâ raft-e ast*

must SUBJ-know.PRES-3sg that friend=PC.3sg where go.PAST.3sg-PSPT be.PRES.3sg

'He should **find out/know** where his friend has gone to'

The available data shows that the basic use of *dânestan,* which is a factive verb and presupposes the truth of the proposition in a *that*-clause as its complement, is to correspond to the verb 'know'. Table 7 represents the status of cognition verb *dânestan* occurred in the Persian texts.

Table 7: The major meanings of Persian dânestan 'know'

Total	167
Major translations	*%*
know	95.2
find out	2.3
Other alternatives	2.2

Examples of *dânestan* (Table 7) in various meanings:

a. Meaning 'know'

(97) *agar to* ***ʧiz=i*** *dar bâre=(j)e in-hâ* ***mi-dân-i***

if PN.2sg thing=IND in about=EZ this-pl DUR-know.PRES-2sg

'If you **know** something/anything about these'

(98) *xob* ***ne-mi-dân-am*** *man âqâ*

well NEG-DUR-know.PRES-1sg PN.1sg sir

'Well, I **do not know** sir'

b. Meaning 'find out'

(99) *bâjad* ***be-dân-am*** *dar bâre=(j)e ki sohbat mi-kon-and*

must SUBJ-know.PRES-1sg about=EZ who talk DUR-do.PRES-3pl

'I should **find out** whom they are talking about'

c. Other meanings

(100) ***mi-dân-am*** *ke che mi-gu-i*

DUR-know.PRES-1sg that what DUR-say.PRES-2sg

'I **understand** what you say'

Think: The next cognition verb is *fekr kardan* 'think do' or *dar fekr budan* 'in think be' which has the highest occurrence in the Persian original texts among the mental verbs; this agrees with the founding by Rips and Conrad (1989 cited in Viberg 2005:142) 'that *think* is the most general concept common with most other mental verbs'. In general, 'think' expresses two kinds of meanings: the first meaning carries a subjective opinion, which is personal and can be correct or incorrect or a supposition along the true/false dimension, and the second refers to a mental activity. In the Persian texts, *fekr kardan* 'think do' with the meaning of an assumption, which can be true or false, accounts for 40.8% of the occurrences of this verb, and the rest (59.1%) refers to a mental activity. The cases in which *fekr kardan* 'think do' does not indicate a mental activity, it is usually followed by a *that*-clause in which the word 'that' *ke* can be omitted. The activity form is in the imperative form or usually accompanies a durative marker such as *mi-* or *dâʃtan,* of course sometimes the context shows the duration. In Persian, *zehn* 'mind' can be metaphorically taken as a container for *fekr* 'thought': *fekr=i be zehn=ash resid* (think=IND to mind=PC.sg reach. PAST.3sg) 'a thought reached his mind'. The metaphorical expression of *tu fekr budan* 'inside thought be' also refers to a mental activity, e.g.:

(101) *mâhi mi-raft o* ***fekr mi-kard***

fish Dur-go.PAST.3sg and think DUR-do.PAST.3sg

'The fish was going and **thinking**'

(102) *goft-am ke* ***fekr=aʃ=***râ *ham* ***na-kon-ad***

say.PAST-1sg that think=PC.3sg=OM too NEG-do.PRES-3sg

'I told him even **not to think** about that'

(103) *mâhi kuʧulu* ***tu fekr bud***

fish small inside think be.PAST.3sg

'The little fish was thinking'

As direct thoughts can be taken as inner speech, the verb 'say' in some languages such as Swedish can be used in the reflexive form to carry the meaning of 'think'. This is true also in Persian to use *goftan* 'say' for this purpose, e.g.:

(104) ***bâ xod=am goft-am*** *kâʃ dar=e kâfe=râ*

with self=PC.1sg say.PAST-1sg I.wish door=EZ café=OM

nime bâz gozâʃt-e bud-am

half open put.PAST-PSPT be.PAST-1sg

'**I said to myself (I thought)** I wish I had left the café door half-open'

There are other expressions such as *kallerâ be kâr andâxtan* 'head to work fall' and *be del bad âvardan* 'to heart bad bring' which are used to refer metaphorically to the verb 'think' in Persian, e.g.:

(105) *man* ***bad be del=am ne-mi-âvar-am***

PN.1sg bad to heart=PC.1sg NEG-DUR-bring.PRES-1sg

'I **do not think** negatively'

(106) ***kale=aʃ=râ be kâr andâxt-e***

head=PC.1sg=OM to work throw.PSPT

'He **has thought** (or He has been thinking)'

The noun form of 'think', *fekr*, can also play the role of its verb, e.g.:

(107) *vaqti ʃenid hâʤ qoli …ezâfe mozd dâd-e*

when hear.PAST.3sg Haj Qoli extra wage give.PSPT

raft tu=(j)e ***fekr***

go.PAST.3sg inside=EZ think

'When he heard that Haj Qoli paid extra money for the wage, he started **to think'**

This example, in addition, shows the metaphorical usage of 'think' in Persian similar to many other languages, i.e. *fekr* 'thought' is taken as a container into where the agent (the subject of the sentence) goes; another example of this type is:

(108) *hamiʃe=(j)e xodâ tu=(j)e* ***fekr*** *bud-e-am*

always=EZ God inside=EZ think/thought be.PAST-PSPT-1sg

'I have always been **thinking**'

The literal translation of this sentence will be: 'I have always been inside the thought'; the word 'God' here is to emphasize the state of 'being always and all the time'.

In another metaphorical use, *fekr* 'thought' is taken as an object which can enter somewhere, e.g.:

(109) *tamâm=e* ***fekr=aʃ*** *piʃ=e omlet=e…. tu=(j)e âʃpazxâne bud*

all=EZ think=PC.3sg before omlet=EZ inside=EZ kitchen be.PAST.3sg

'All the time, he was thinking about the omelet which was in the kitchen'

The literal translation will be: 'all his thought was gone to the kitchen beside the omelet'.

There are a couple of verbs, *hads* zadan 'guess hit' and *xijâl kardan* 'fancy/dream do', which are somehow related to the mental verbs and can be used to refer to the verb 'think', e.g.:

(110) *bâjad…* ***hads be-zan-am*** *che mi-xâh-ad*

must guess SUBJ-hit.PRES-1sg what DUR-want.PRES-3sg

'I should **think to see/guess** what he wants'

(111) *ke* ***xijâl kard-id*** *mâ mi-xâh-im ʃomâ=râ shekâr kon-im*

that dream do.PAST.2pl PN.1pl DUR-want.PRES-1pl PN.2pl=OM hunt do.PRES-1pl

'That you have **thought** we want to hunt you'

Table 8 represents the status of cognition verb *fekr kardan* occurred in the Persian texts.

Table 8: The major meanings of Persian fekr kardan 'think do'

Total	247
Major translations	*%*
think (activity)	59.1
think (subjective opinion, true/false)	40.8

Examples of *fekr kardan* (Table 8) in various meanings:

a. Meaning 'think (subjective opinion, true/false)'

(112) ***fekr mi-kon-i*** *ke xod=e pâʧino-st ke âmad-e*

think DUR-do.PRES-2sg that self=EZ Pachino-be.PRES.3sg that come.PAST-PSPT

'You **think** he is Pachino himself who has come'

(113) ***fekr mi-kon-am*** *ʤânevar=e dânâ=i bâʃ-i*

think Dur-do.PRES-1sg creature=EZ wise=IND SUBJ.be.PRES -2sg

'I **think** you are a wise creature'

b. Meaning 'think (activity)'

(114) *be in mozu* ***fekr mi-kon-am***

to DEM subject think DUR-do.PRES-1sg

'I will **think** about this subject'

(115) ***dâʃt*** *be=(h)eʃ* ***fekr mi-kard***

have.PAST.3sg to=PC.3sg think DUR-do.PAST.3sg

'He **was thinking** about it'

(116) ***dar fekre ʧâre=i bâʃ*** (metaphoric)

in think remedy=IND IMP.be.2sg

'**Think** about a remedy'

Understand: The last mental verb taken up in this study is *fahmidan* 'understand' which has an interesting range of meanings in Persian language. As Fortescue (2001: 20) points out many languages have a construction with the core meaning of 'understand' which are related to other semantic domains by metaphor. He (*ibid*:22) also believes that it is not always a matter of metaphor but those expressions of 'understanding' which refers to 'coming to know' are often "inchoative derivations of 'know' verbs and/or the polysemy of words covering more than one central cognitive subdomain". The verb 'understand' is not the most equivalent for *fahmidan* in the Persian texts. This verb covers other cognitive verbs such as 'realize' and 'learn' as well as perception verbs. In the metaphorical cases, expressions such as *gereftam* 'I got it', *bâhâtam* 'I am with you', and *hâlime* 'I can perceive' refers to the meaning of 'understand' in informal situations. 18.1% of *fahmidan* occurrences refer to 'understand', 26.5% to 'know', and 1.5% to the perception verbs of 'see' and 'hear'. To refer to 'see' and 'hear', *fahmidan* usually appears in the negative form but occurrence of the positive form is not unlikely (*sedâjaʃ zadam fahmid va âmad/ nafahmid va raft* 'I called her, she heard and came/ but she did not hear and went'). 4.5%, in the repeated positive and negative forms: *befahmi, nafahmi*, refers to the expression 'a little', and the rest, mostly cognitions, accounts for 49.1% of the occurrences. Tables 9 represents the status of cognition verb *fahmidan* occurred in the Persian texts.

Table 9: The major meanings of Persian fahmidan 'understand'

Total	132
Major translations	*%*
understand	18.1
know	26.5
realize/recognize	18.9
see/hear	1.5
learn/notice	22.7
find out	7.5
a little	4.5

Examples of *fahmidan* (Table 9) in various meanings:

a. Meaning 'understand'

(117) *man mi-xâh-am be=(h)eʃân* ***be-fahm-ân-am*** *ke…*

PN.1sg DUR-want.PRES-1sg to=PC.3pl SUBJ-understand.PRES-CAUS-1sg that…

'I want to make them **understand** that …'

(118) *man… aql va huʃ dâr-am va* ***mi-fahm-am***

PN.1sg intellect have.PRES-1sg and DUR-understand.PRES-1sg

'I am wise and I **understand**'

(119) ***mi-fahm-i*** *ke ʧe mi-gu-(j)am*

DUR-understand.PRES-2sg that what DUR-say.PRES-1sg

'Do you **understand** what I am saying'

b. Meaning 'know'

(120) *man ânqadr omr kard-e-am*

PN.1sg that.much life do.PAST-PSPT-1sg

ke ***be-fahm-am*** *donjâ hamin berke ast*

that SUBJ-understand.PRES-1sg world same.this pond be.PRES.3sg

'I have lived for long enough to **know** that the world is just this pond'

(121) *xod=aʃ=râ be* ***na-fahmi*** *mi-ʒan-ad*

self=PC.3sg=OM to NEG-understanding DUR-hit.PRES-3sg

'He pretends **not to know**'

c. Meaning 'realize/recognize'

(122) *aʒ lang lang david-an=e âhu*

from limp run.PAST-INF=EZ deer

fahmid *ke râst mi-gu-(j)ad*

understand.PAST.3sg that truth DUR-say.PRES-3sg

'Since the deer was limping he **realized** that he says the truth'

(123) *aʒ ândʒâ* ***fahmid-am*** *ke*

from there understand.PAST-1sg that

sedâ=(j)aʃ be xer xer oftâd-e bud

sound=PC.3sg to harsh fall.PAST-PSPT be.PAST.3sg

'I **recognized** it from her voice that had become harsh'

d. Meaning 'see/hear'

(124) *u=râ mi-bin-ad ammâ xod=râ be* ***na-fahmi*** *mi-ʒan-ad*

PN.sg=OM DUR-see.PRES-3sg but self=OM to NEG-understanding DUR-hit.PRES-3sg

'He sees her but pretends **not to see** her'

(125) *bâ inke… sedâ=ʃ ʒad-am* ***na-fahm-id***

although sound=PC.3sg hit.PAST-1sg NEG-understand.PAST-3sg

'Although I called him he **did not hear'**

e. Meaning 'learn/notice'

(126) ***fahmid-e ast*** *ʧetor bâjad piʃband=aʃ=râ… be-band-ad*

understand.PAST-PSPT be.PRES.3sg how must apron=PC.3sg=OM SUBJ-tie.PRES-3sg

'She **has learned** how to fix her apron'

(127) *tâ balke xod=aʃ* ***be-fahm-ad*** *bâzi tamâm ʃod-e'*

perhaps self=PN.3sg SUBJ-understand.PRES-3sg game finish become.PAST-PSPT

'He may **notices** himself that the game is over'

f. Meaning 'find out'

(128) *be=(h)eʃ negâh kon-am balke*

to=PC.3sg look do.PRES-1sg perhaps

be-fahm-am *taraf=e ki-(j)e*

SUBJ-understand.PRES-1sg side=EZ who-be.PRES.3sg

'I should look at and pay attention to him to **find out** whom he is with'

g. Meaning 'a little'

(129) ***be-fahm-i*** ***na-fahm-i***

SUBJ-understand.PRES-2sg NEG-understand.PRES-2sg

aʒ man kutâh-tar ast

from PN.1sg short-SUPR be.PRES.3sg

'He is **a little** bit shorter than me'

B- Result and Discussion on cognitive verbs in Balochi:

zɑ:nag **'know':** According to the data, cognition verbs in Balochi and Sistani, especially in Balochi, are not as many as those in Persian. Not in agreement with Fortescue (2001) who believes that all languages have at least a word with the core meaning of 'understand', it is interesting to see that there is apparently no straight equivalent for 'understand' in Balochi. The compound verb of *sar pad buten* 'head track be' as well as other cognition verbs refer to 'understand' in this language. *ʒɑ:nag* in Balochi is the counterpart of 'know' in English. 83.3% of its occurrences in the data refer to 'know' and the rest, 16.6%, accounts for the verb 'recognize' which actually can be translated into 'know' either; of course it can also be used to refer to 'understand'. In addition, the expressions *malum buten* 'clear be' and *sar pɑ:ʧ ɑten* 'head open come'

(metaphoric) are used to refer to know/understand in different situations, e.g.:

(130) *bi man mn-i* ***ɑ:l malum na-bu***

to PN.1sg PN.1sg-GEN state revealed NEG-become.PAST.3sg

'I did not **know/understand** what happened to me'

(131) *mn-i* ***sar*** *mɑ:s-i o zɑ:g-i* ***pɑ:ʧ na-(j)ɑt***

PN.1sg-GEN head mother-GEN and child-GEN open NEG-come.PRES.3sg

'I **do not know** (who) my mother and my child (are) at this moment (that I am angry)'

Table 10. represents the major meanings of *zɑ:nag* 'know' in Balochi:

Table 10: The major meanings of Balochi zɑ:nag 'know'

Total	74
Major translations	*%*
know	83.3
recognize	16.6

Examples of *zɑ:nag* (Table 10) in various meanings:

a. Meaning 'know'

(132) *man naql-e* ***zɑ:n-in***

PN.1sg quotation-IND know.PRES-1sg

'I **know** a quotation'

(133) *go:ʃt ta* ***ʧo:n zɑ:n-e***

say.PAST.3sg PN.2sg how know.PRES-2sg

'He said: how do you ***know***?'

b. Meaning 'recognize'

(134) *bɑdiʃɑ ki eʃi-rɑ di:st* ***zɑ:nt*** *ki*

king that DEM-OM see.PAST.3sg know.PAST.3sg that

diga kiʃvar-ay mardum-e

other country-GEN people-IND

'When the king saw him, he **recognized** that he was from another country'

***fekr (pekr) korten* 'think':** The only other cognition verb found in the data is *fekr (pekr) korten* 'think do' which mostly show the activity usage of this verb rather than the true/false assumption or subjective opinion practice in this language. The expression *goʃag/guʃag* 'to say' in some cases indicates the inner speech (say to oneself) and means 'thinking'. Table 11 represents the major meanings of verb *fekr korten* in Balochi.

Table 11: The major meanings of Balochi fekr korten 'think do'

Total	36
Major translations	*%*
think (activity)	87.5
think (subjective opinion, true/false)	12.5

Examples of *fekr korten* (Table 11) in various meanings:

a. Meaning 'think (activity)'

(135) ***pekr kort*** *o goʃt-i*

think do.PAST.3sg and say.PAST.3sg-PC.3sg

'He **thought** and said'

b. Meaning 'think (subjective opinion, true/false)'

(136) *man* ***fekr kort-on*** *ta ʃot-ag-e*

PN.1sg think do.PAST-1sg PN.2sg go.PAST-PSPT-2sg

'I **thought** you had gone'

C- Result and Discussion on cognitive verbs in Sistani:

***faːmidaː /donestaː* 'understand/know':** In general, Sistani have direct equivalent for the verb 'know', *donestaː*. Although this is the straight match for 'know' in Sistani, which is very likely to come from Persian *dânesta*n 'know', it is almost not used for the meaning of 'know' by the Sistani speakers. The cognitive expression *faːmida* 'understand' is mainly used to indicate the meaning of 'know', but surprisingly, *faːmidaː* itself does not refer that much to its equivalent 'understand' in the original texts. 70% of the verb *faːmidaː* appearance accounts for 'know', 16.6% for 'realize', 6.6% for remember, and 6.6 for 'understand'. Table 12. Shows the major meanings of *faːmidaː* in Sistani:

Table 12: The major meanings of Sistani faːmidaː 'understand'

Total	30

Major translations	%
know	70
realize	16.6
remember	6.6
understand	6.6

Examples of *faːmidaː* (Table 12) in various meanings:

a. Meaning 'know'

(137) *xodâ* ***m-faːm-a*** *xe i ʧ-kâr eʃt-a*

God DUR-understand.PRES-3sg with DEM what-work become.PAST-PSPT

'God **knows** what has happened to him'

(138) *ʃaːra ke* ***m-faːmid-a***

city who DUR-understand.PAST-PSPT

'Nobody **knew** what was a city'

b. Meaning 'realize'

(139) ***m-faːm-e*** *ke to ʃaːqâl ast-i*

DUR-understand.PRES-3pl that PN.2sg jackal be.PRES-2sg

'They will **realize** that you are a jackal'

c. Meaning 'remember'

(140) *ke* ***faːm-i*** *ke dar kado xoːna dâːd-eː*

that understand.PRES-2sg that door which house give.PAST-PSPT.2sg

'That you **remember** to which house you have given it'

d. Meaning 'understand'

(141) me *âːl-e t-ra* ***m-faːm-o***

PN.1sg feeling-EZ PN.2sg-OM DUR-understand.PRES-1sg

'I can **understand** how you feel'

***fekr kardaː* 'think':** The same as in Balochi, *fekr kardaː* 'think do' has been found as another cognitive verb within the Sistani data. Most of these verbs are used to express a subjective opinion or an assumption which can be considered true or false. Other expressions related to this cognitive verb are used to refer to the mental activity of 'thinking'. These expressions are *goftaː* 'say' which shows the inner speech (say to oneself), and the noun form of 'thinking' which sometimes appears in the metaphoric form. Table 13 represents the state of cognitive verb *fekr kardaː* in Sistani:

Table 13: The major meanings of Sistani fekr kardaː 'think do'

Total	19
Major translations	*%*
think (activity)	10.5
think (subjective opinion, true/false)	89.4

Examples of *fekr kardaː* (Table 13) in various meanings:

a. Meaning 'think (activity)'

(142) ***fekr****-e dgeː* ***k-o***

think-EZ another do.IMP-2sg

'**Think** about another solution'

b. Meaning 'think (subjective opinion, true/false)'

(143) *i fâːtma* ***fekr kon-o*** *daːr saːrâ âːʃeq=e dâːr-a*

DEM Fateme think do.PRES-1sg in desert lover=IND have.PRES-3sg

'I **think** Fateme has a lover in the desert'

(144) ***bg-a*** *xodâjâ me xâːr=e=x=â oʃto sargarm kon-o* (inner speech)

say.PAST-3sg O God PN.1sg sister=EZ=self=OM how busy do.PRES.1sg

'She **told/ thought** to herself: 'Oh God, how can I get my sister busy (to not be able to notice)'

V. To sum up

All languages have mental verbs that their specific lexical structures and semantic characters may differ cross-linguistically from a typological perspective. Based on the typological analysis of lexical organization in languages (Montgomery 2005), which reveals the variations in items such as meaning specified in this work, the goal of this paper was to find contrastively the alternation of meanings of the basic perception and cognition mental verbs in genetically related language varieties of Persian, Balochi and Sistani, all spoken in Iran and in contact with each other. The basic grid of the English perception/cognition verbs was used as the linguistic model. The study was based on the corpus data, containing more than 500,000 words, obtained from the fiction and non-fiction stories and texts, and

recorded data from consultants. The analysis of the three language varieties under study showed that they possess nuclear verbs in the different semantic fields whose prototypical meanings reflect universal tendencies. In Persian, the nuclear verb of perception field *didan* 'see' is basically experience, and refers to perceptual activity too. Usage of one verb in various sense modalities as language-specific characteristics (Viberg, 2014: 2005), *didan* 'see' has not a straightforward extension over other experiences such as *taste* or *smell*, i.e. the noun forms of *taste* and *smell* are also used with *see* simultaneously: ***Bebin*** *che* ***boo****ei mide?* **See** what **smell** does it have? But in some cases, *didan* 'see' refers to many other meanings some of them related to other semantic fields mostly cognition, e.g., 'hear', 'feel', 'know', and 'meet', a verb of social contact, as it is also indicated in Goyak *et. al.* (2021) and Viberg (2008), and some of them, such as 'maybe' are not related to the other fields.

The state of *see* in Balochi and Sistani are in some extent the same as in Persian, but there are differences such as limited diverse meanings for the Balochi verb *gindag* 'see'. Between Balochi and Sistani, the state of perception verbs in Sistani is more similar to that of Persian. In a low percentage, 'see' in these varieties refers to the communicative meaning of 'you know/take notice'. The statistical analysis of the verb 'see' shows that there is significant difference among the numbers of the verb 'see' carrying different meanings in each language variant, and significant differences among the range of meanings that verb 'see' refers to, and among the proportion of the verbs 'see' with core meaning to the ones referring to the different meanings. The perception verb of 'feel' in these varieties refers to 'experience an emotion' as well as to some cognitive verbs. As a language-specific characteristic, the zero occurrence of this verb, i.e., no appearance of the verbs in the sentences, can be translated into the verb 'feel' in the all three variants. Apparently, the equivalents of 'feel' in Balochi and Sistani have arrived in these language varieties from Persian, the prominent language in close contact. It seems that the cognitive expressions such as 'think' represent the meaning of 'feel' in some cases in these two varieties. The perception verbs of 'taste' and 'smell' (contains 'bad' meaning) behave the same, as simple verbs, in all these language varieties.

Cognition verbs in Balochi and Sistani, especially in Balochi, are not as vast as those in Persian. Unlike the claim of Fortescue (2001) as believing all languages have at least a word with the core meaning of 'understand', interestingly there are apparently no straight equivalents for the cognitive verbs 'understand' in Balochi and surprisingly less, almost not use of verb 'know' in Sistani for the meaning of 'know'. In Sistani data, the expression *faːmida* 'understand' is almost always used to indicate the meaning of 'know', and *faːmida* itself does not usually refer to its equivalent 'understand' in the original texts. The verb 'think' in the three refers both to a mental activity and a true/false assumption. Carrying assumption, 'think' is usually followed by a *that*-clause, but the activity form usually accompanies a durative marker such as *mi-* (in Persian and Sistani) or *dâʃtan* 'have' (in all three), or it is in the imperative form. As referred to metaphorical aspects of mental verbs in studies such as Zubaidi & Nasihah (2022), Fortescue (2001), Palmer (2003), etc., there also observed metaphorical expressions with a different range in these language varieties, e.g., 'think' with the metaphorical meaning such as 'being inside the thought'; these expressions refer to a mental activity in all three variants. The verb 'say' (to oneself) as inner speech, in Persian and in the other two varieties can be used to refer to the verb 'think'; it is especially used to show mental activity in Sistani. *fahmidan* 'understand' has an interesting range of meanings in Persian. It covers other cognitive verbs as well as perception verbs 'see' and 'hear', and in the repeated forms of positive and negative, *befahmi-nafahmi* it refers to the expression 'a little'. In the metaphorical cases, expressions such as *gereftam* 'I got it', or *bâhâtam* 'I am with you' refers to the meaning of 'understand' in informal situations.

In spite of the sameness that has partly been caused by the language contact between Persian as the standard language of the country and Balochi and Sistani as the other varieties spoken around, the findings reveal that the three varieties especially Persian and Balochi, in spite of being sisters, differ in the range of meanings of many of the verbs under study, e.g., the number of meanings of the verb 'see' in Persian is twice as many as in Balochi (see Table 14). This can indicate that Balochi, despite being in constant contact with Persian, has not been much affected by the dominant language and has maintained its own mental verbs original meanings, even though limited. Various reasons such as the level of literacy, cultural differences, limited intergroup communication and relationships among the speakers of Persian and Balochi can cause Balochi to be less influenced semantically by the languages spoken around it. Sistani, although is a Persian variant and expected to almost follow its mother, has also shown some differences with Persian in the semantic area of mental verbs; this means that it is possible for languages from

the same family and their varieties to not be totally influenced by each other via language contact, but they choose their own way towards development and changes. This study, by typological contrastive analysis, reveals many different meanings and characteristics of mental verbs in the three language varieties under study. Because of belonging to the same language family, the state of the studied mental verbs in Persian, Balochi, and Sistani are to some extent alike, but there are interesting dissimilarities among the three that, along with the consideration of the similarities, should be taken into account in the processes of language reconstruction, language acquisition, teaching and translation. The variety of the mental verbs treated in this paper is restricted to the data. Definitely, more texts would lead the study to a more comprehensive work. Table 14. below, as sample, represents the range of meanings the mental verbs showed in the three language varieties (Persian=P, Balochi=B, Sistani=S):

Table 14: Range of the mental (perception, cognition) verbs meanings found in the data

Perception verbs					
see			**feel**		
P	**B**	**S**	**P**	**B**	**S**
didan	***gindag***	***di:da:***	***ehsɑs kardan***	***e:sɑ:s kanag***	***e:sɑ:s karda:***
see *look* *know* *realize* *believe* *find out* *hear* *feel* *notice* *meet* *experience* *observe* *watch* *might* *view/opinion*	*see,* *look* *know* *realize* *believe* *find* *hear/listen* *feel*	*see* *look* *know* *realize* *believe* *find out* *hear* *find* *notice* *meet* *experience*	*feel* *think* *hear* *notice* *realize*	*feel* *think*	*feel* *think*

			Cognition verbs					
know			**understand**			**think**		
P	**B**	**S**	**P**	**B**	**S**	**P**	**B**	**S**
dɑnestan	***zɑnag***	***donestaː/ faːmidaː***	***fahmidan***	***sar pad buten***	***faːmidaː***	***fekr kardan***	***fekr (pekr) korten***	***fekr karda:***
know, find out, understand	*know, recognize*	*know*	*understand, know, realize, recognize, learn, notice, find out, see, hear, learn, a little*	*understand*	*understand, know, realize, remember*	*thinking as ativity, thinking as subjective opinion, thinking as true/false assumption*	*thinking as ativity, thinking as true/false assumption*	*thinking as ativity thinking as true/false assumption*

Table 15: Abbreviations: List of abbreviations of grammatical glosses and terms

ADJ	adjectivaliser	EZ	ezafe	pl	plural
ADV	adverbializer	GEN	genitive	PN	pronoun
ATTR	attributive	IMP	imperative	PRES	present
AUX	auxiliary	IND	indefinite	PSPT	past participle
CAUS	causative	INF	infinitive	SBJN	subjunctive mood
CL	classifier	NEG	negative	sg	singular
COP	copula verb	OBL	oblique	SUPR	superlative degree
DEF	definite	OM	object marker	VC	verbal clitic
DEM	demonstrative	PAST	past		
DUR	durative	PC	pronominal clitic		

Data sources

Persian: *Kâfe Piâno* 'Piano café', *Mâhi Siâhe Kuchulu* 'The little black fish', *Pesarake Labu Forush* 'The little beetroot vendor', *Sâshâ va Asbe Jâdui* 'Sasha and the magic horse', *Kârvânsarâye Dozdâb* 'Caravanserai of Dozdab', *oral communication*, *Qessehâ-ye pand âmuz-e Kelile va Demne* 'Advising stories of Kelileh and Demneh'.

Balochi: *Āsmānak* 'Story', *Āmuzeshe Shere Klāsik, Qāfiye, Aruz va…; Farsi, Balochi* 'Teaching the classical poem, rhythm, and…; Farsi, Balochi, *Baxta Padā* 'Track the destiny', *Bādishāay Say Zāg* ' The king's three sons', *Grand* 'Thunder', *Jawr* 'Bitter', *Jōlāag o Pādeshā* 'The spider and the king', *life story*, *oral communication*, *Pādeshāi Āsmānak* 'The king's story', *Pisse Mīrās* 'The inheritance of father', *Pire Jangi* 'Pire Jangi', *Shīray Xurākī* 'Dairy products', *Sikkay Rēstin* 'Carpet weaving', *Tajjāri Indi u Misri Zargaray Jinikk* 'The Indian merchant and the Egyptian goldsmith's daughter', *Tajjār u Muzdūr* 'The merchant and the servant', *Xarmiza* 'Melon', *Xānbādor* 'Xanbador', *Zāgīgirīay Yāt* 'Childhood's recollection'.

Sistani Persian: *Bībī o Nvâsa* 'Grandmother and the grandchild', *Bozake Jangali Shā* 'Jangali Sha goat', *Bibi Sashemme* 'Tuesday grandmother', *Drōqe Bērâst* 'Lying without any true word', *Esfandiâr* 'Esfandiar', *Gove Sūr* 'The red cow', *Hizom Shekan o Shēr* 'The woodman and the lion', *life story*, *Mashti Amir* 'Mashti Amir', *Mâr o Mâldâr* 'The snake and the herdsman', *Mâre Xazonadâr* 'The treasurer snake', *oral communication*, *Pirmarde Mazdūr* 'The old worker', *Rostam o Shaqqâd* 'Rostam and Shaqqad', *Shaqâl o Pâtīle Rang* 'The jackal and the painting caldron', *Sistânâ* 'Sistani'.

The published data related to all three language varieties are from Axenov(2006), Ayyubi (2005) [1384], Bahari (2014) [1393], Behrangi (1968) [1347], Elfenbein (1990), Jafari (2007) [1386], Mohammadi Khomak (2001) [1379], Mohammadi Manesh (2015) [1394], Rakhshani (2013) [1392], Roberts, Barjasteh Delforooz, Jahani and Korn (2009).

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