

Cognitive Accessibility and Referents Encoding Possibilities

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Abstract

This paper investigates the different encoding possibilities of referents in line with the cognitive accessibility level in the mind of the interlocutors in Pashto language. The paper discusses different encoding possibilities cross linguistically and eventually figures out what possibilities are found in Pashto. The paper focuses the speaker's choices between different types of referring expressions such as full determiner phrases, pronouns, clitics, or agreement markers/accessibility markers according to the salience in a given discourse context (Ariel, 1990) in the light of Accessibility Theory. Accessibility Theory classifies referents into higher and lower accessibility markers in line with the cognitive accessibility level in the mind of the interlocutors, for example the following examples show lower and higher accessibility makers in Pashto respectively. In the first example (1a), the proper noun (Ahmad) shows the lower accessibility marker while in the second example (1b), the pro (an empty argument) shows higher accessibility maker.

1)

- | | | | |
|----|------------------------|---------------------|--------------|
| A) | AHMAD | kitab | rawro |
| | Ahmad | book | bring.PST.PF |
| | Ahmad bought the book. | | |
| B) | ..... | raa ye | wro |
| | Pro | 3.SG.CLbring.PST.PF | |
| | He brought it. | | |

A close relationship between the salience/accessibility and the morphological encoding of a discourse referent in Pashto is established. The study finds out that the higher accessibility markers are chosen if the accessibility of the discourse referents is higher while lower accessibility markers are chosen if the accessibility is lower. The lower accessibility markers are more informative than the higher accessibility markers, i.e. proper names or full DPs are more informative than (weak) pronouns, clitics, agreement markers and *pro*. The less informative markers are often phonologically reduced or deficient. The use of these markers is driven by the speaker's desire (in line with discourse context) to use appropriate (full or reduced) markers to refer to highly accessible or low accessible discourse referents.

1. Introduction

Language production has three main stages. The first stage is *conceptualization*, i.e. to decide about what to express, the second stage is *formulation*, i.e. to determine how to express the concept and the third stage is *articulation*, i.e. to express the concept (Levelt, 1989). The present paper concerns with the first two stages of language production. It specifically focuses on how the referents (different forms of noun) are generated specifying their semantic and pragmatic properties. The words are produced by speakers corresponding to semantic and pragmatic specifications for these words. These meaning-level representations make lexical-level representations available (Griffin and Ferreira, 2006).

1.1 Cognitive accessibility

Cognitive accessibility refers to reflection of the speaker's assumptions about the listener's state of knowledge in the exchange at the time of utterance (Lambrecht, 1994; Belloro, 2007; Rahman, 2014) based on the theory of Accessibility Theory (Ariel, 1998, 2000). Conceptual accessibility is the ease of retrieval of referents from memory. In sentence production, there is a tendency that the more conceptually accessible are more easily retrieved from memory (Bock & Warren 1985), because language production involves encoding information (message) into morphological/syntactic, codes (sentences), i.e. the mapping of cognitive concepts into a linear structural order of speech sounds. Language production theories identify the following three different levels of processing (Garrett, 1975, 1980; Bock & Levelt, 1994).

- 1) Message generation
- 2) Grammatical encoding
- 3) Phonological encoding

At the first level (message generation level), the message captures features of the speaker's intended meaning and provides the raw material for the next process (grammatical encoding). The grammatical encoding involves lexical selection, syntactic functions and morphological processes. Finally, the phonological encoding involves spelling out the phonological structure of the utterance (Tanaka, 2003). The present study focuses on the mapping of the first two levels in Pashto language. At the grammatical encoding level, the different forms of morphological encoding represent different accessibility levels with different accessibility markers. Although the thematic saliency (significance of the participants' role) of the participants and their persistence in discourse can also influence the accessibility in the reader/listener's consciousness (Runge, 2006) but the present study focuses on the encoding of the referents from the speaker's perspective.

Conceptual accessibility of the referents has been investigated cross linguistically from many perspectives including animacy of the referents (inherent salience), the discourse status of the referents, i.e. topic/focus or given/new information (derived salience) and the thematic role of the referents, i.e. agent, patient, instrument (equated salience). These eventually raise issues like word order and syntactic structures being investigated cross linguistically. When a speaker chooses a particular referring expression, he assumes a particular cognitive status of the addressee. These referential choices obviously require social-cognitive skills (Christianson and Ferreira, 2005).

1.2 Accessibility markers

The accessibility of the referents in the mind of the interlocutor might be higher or lower. The higher cognitive accessibility is encoded using higher accessibility markers while the lower cognitive accessibility is encoded through lower accessibility markers. The following two examples show lower and higher accessibility in the mind of the interlocutors respectively. In the first example (2a), the accessibility is lower i.e. the speaker assumes that the listener does not recognize the referent (Ahmad) and so uses full NP (proper name) but in the second example (2b), the accessibility is higher i.e. the speaker assumes that the listener recognizes the referent from the context of the discourse and so does not use a full NP but uses a clitic *war* instead.

- 2)
- | | | | | |
|----|---------------------|-------|-------|-----------------------|
| a) | Za | da... | AHMAD | ...SARAKarkom |
| | 1.SG | PREP | Ahmad | with help.do.PRST.IMP |
| | I am helping Ahmad. | | | |
| b) | Za | WAR | sara | karkom |
| | 1.SG | CL | with | help.do.PRST.IMP |
| | I am helping him. | | | |

The lower accessibility markers are more informative than the higher accessibility markers. Full DPs and proper names are lower accessible markers while weak pronouns, clitics, pro and agreement markers are higher accessible markers which are used in line with the context of the discourse (Rahman, 2014). The inactive participants are encoded by full forms of the referents active participants are characteristically encoded by reduced pronominal forms (clitic/pro). The semiactive participants are commonly encoded by pronominal forms cross linguistically (Givón, 1988).

2. Accessibility Theory

Accessibility theory claims that the speaker chooses particular referring expressions (NPs or DPs) from the listener's mental perspective based on the shared knowledge in the discourse which is mostly context driven. The morphological encoding possibilities are based on this cognitive accessibility (Eric, 2005) and the speaker chooses those referring expressions which have some degree of easiness if the discourse context can allow any such possibility. The degree of "easiness" with which a referent can be accessed represents its "activation state" (Chafe, 1994), and the particular activation state a referent may have depends on attentional and short-term memory limitations. This activation state helps in identifying the referents not just a matter of *knowledge* i.e. whether the referent is identifiable or not but also a matter of *attention* i.e. whether the referent is accessible at a particular point in interaction (Belloro, 2007). The following anaphoric use of the pronoun show that the referent is accessible at a particular time in interaction being the center of attention.

- 2) **He** has been our costumer for a long time, so we'll have to give it to **him**.

Accessibility theory claims the transition from free pronoun to bound agreement markers. This transition is not merely a phonological reduction but driven by the appropriate use of referents representing higher and lower accessible discourse referents (Ariel, 2000). There are different morphological markers of the DPs showing different accessibility levels of this activation state.

2.1 Activation levels

The referents can be identifiable or unidentifiable in the context of the discourse. Both identifiable and unidentifiable have their level of activation (two of unidentifiable and three of identifiable) making five activation levels totally. These five possible activation levels include 'active, accessible, inactive, anchored and unanchored' levels. The following figure shows these activation levels.

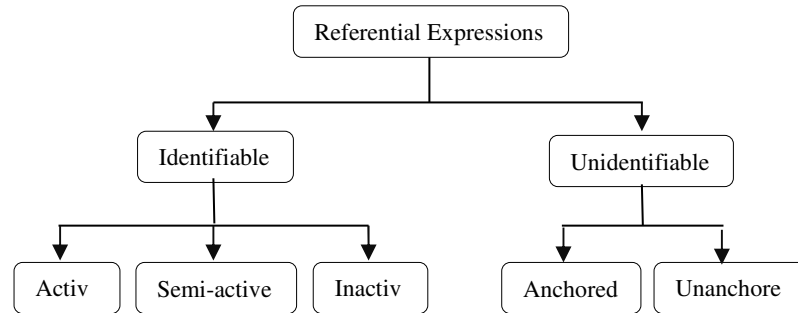


Figure 1: **The cognitive states of referents in discourse**

The active referent in the above figure is actively under consideration and the accessible is readily recognized, while the inactive is previously mentioned but not actively under consideration. The speaker assumes the cognitive status of the listener presupposing the activation level of the referent in his mind and selects the appropriate morphological form for the referent. The anchored is not under consideration but assumed to be recognized by the hearer because of the schemata of the world while the unanchored is neither mentioned nor related to anything mentioned (Van-Valin & LaPolla, 1997).

3.Pashto Word Order

Pashto, like other Pakistani languages, has the unmarked SOV order. It is a rigidly head final language where the lexical heads in the phrase are head final, at least (Tegey & Robson, 1996; Roberts, 2000). The following examples show the unmarked SOV order of the language (Rahman, 2014).

- 4 a) Taa kitab Iwasto
 2.SG.ERG book.SG.ABS read.SG.PST.IMP.ABS
 You were reading a book.
- b) Mahmood kar kai
 Mahmood.NOM work.M.ACC do.M.PRES.NOM
 Mahmud is working.
- c) Spi me pisho khog kra
 Dog.SG.ERG 1.SG.CL cat.SG.ABS hurt do.PST.ABS
 My dog hurt the cat.

Pashto has OSV order derived from the unmarked SOV order if the object is scrambled for topicalization, etc. The following examples show the OSV order derived from the unmarked SOV order. The OSV order is commonly used in past tense and this is not a preferred order in present tense (Roberts, 2000; Rahman, 2014).

5 a)	Kitab	maa	lwastalay	day
	Book.M.ABS	1.SG.ERG	read.PST.PF.ABS	be.PRES.ABS
I have read the book.				
b)	Ta	sari	wahaley	ye
	2.SG.ABS	man.SG.ERG	beat.PST.PF.ABS	be.PRES.ABS
The man has beaten you.				
c)	Pisho	me	spi	khog
	Cat.ABS	1.SG.CL	dog.SG.ERG	hurt do.PST.ABS
The dog injured my cat.				

3.1 Pashto nouns

Pashto nouns have number, gender and case features. These features on the nouns determine the agreement within NPs, clauses and sentences. The gender of the noun head, for example, determines the respective gender of the adjective as a modifier preceding the noun in the NP; the gender of the subject (in non-past) and the object (in past) determines the agreement markers realized on the verb in the clause (Tegey & Robson, 1996; Roberts, 2000). Tegey and Robson (1996) have listed the following morphological properties applied to nouns in Pashto¹ (Rahman, 2014).

Table 3.1: Inflection of nouns in Pashto

Number		Gender		Case ²	
Singular	Plural	Masculine	Feminine	Direct	Oblique
malgaray (friend)	malgari (friends)	malgaray (friend M)	malgare (friend F)	malgaray (friend)	malgari (friend)

The suffixes showing number and gender and case markers sometimes coincide, as in the above table. The following examples show it further (Rahman, 2014).

6 a)	Ahmad	zama	margaray	day
	Ahmad	my	friend	.Mbe.PRES.M
Ahmad is my friend.				
b)	Ayessha	zama	margari	da
	Ayessha	my	friend.F	be.PRES.F
Ayessha is my friend.				
c)	Agha	zama	magaray	day
	He	my	friend.SG.M	be.PRES.SG.M
He is my friend.				
d)	Agho	zama	malgari	di
	They	my	friends.PL	be.PRES.PL
They are my friends.				

¹ Based on the morphological derivation of different forms of nouns, we have four classes of masculine nouns and three classes of feminine nouns along with some irregular nouns idiosyncratically derived. There is no unified treatment of noun classes and different authors have identified different classes of nouns (Tegey & Robson, 1996).

² There are other forms of direct and indirect cases in terms of the respective gender and number, but these are the simplest forms for explanation.

The Pashto nouns can function as subject, object, object of preposition and vocatives (Tegey & Robson, 1996; Rahman, 2014). Pashto DPs are realized by full lexical DPs, Pronouns, clitics/agreement markers or empty arguments. All these possibilities for DPs have their own discourse pragmatic conditions in terms of their activation levels.

4. Encoding Possibilities for Pashto Referents

There are different discourses pragmatic reasons for the DPs to appear as full lexical NP, pronominal or clitic. The choice on the part of speaker to choose one of these forms is mediation between sentence 'meaning' and 'form' in the form of pragmatically structured proposition reflecting the knowledge about the addressee's state of knowledge at the time of utterance in discourse (Lambrecht, 1994). All these possibilities have pragmatic implications.

The speaker's choices between different types of referring expressions such as full DPs, pronouns or clitics are encoded according to the salience in a given discourse context (Ariel, 1990, 2000). There is a close relationship between the salience/accessibility and the morphological encoding of a discourse referent in Pashto (Rahman, 2014). The higher accessibility markers are chosen for Pashto DPs if the accessibility of the discourse referents is higher while lower accessibility markers are chosen if the accessibility is lower.

The lower accessibility markers are more informative than the higher accessibility markers, i.e. proper names or full DPs are more informative than (weak) pronouns, clitics, agreement markers and pro (Eric, 2005). The less informative markers are often phonologically reduced or deficient (Clitics). The use of these markers is driven by the speaker's desire (in line with discourse context) to use appropriate (full or reduced) markers to refer to highly accessible or less accessible discourse referents.

4.1 Lower accessibility markers in Pashto

Lower accessibility markers in Pashto are proper names or full DPs. The lower accessibility markers are more informative and are typically chosen when the referred element is introduced for the first time into the discourse or has a low degree of salience. Full lexical NPs are used when the referents are newly introduced in the discourse. When there are more possible referents in the context of the discourse, the addressee's state of knowledge may not be clear about any one of them but may assume the reference to the last mentioned referent. Speakers in such conditions use full lexical NP to avoid misinterpretation of the intended referent. This is more frequent in texts than in natural discourse because the possible referents in natural discourse are always fewer than the possible referents in the texts.

4.1.1 Full Lexical NP Identifying Lower Accessible Markers

The following examples from the Pashto text show the full lexical NP appearing as lower accessible markers. The NP *astanano* (assistants) in the first example (7a) appears as full lexical NP because the intended referent is lower accessible marker which is newly introduced in the discourse. Similarly, in the second example (7b), the NP *naroghantoon* (hospital) is full NP identifying newly introduced referent. The referent is inactive in the mind of the interlocutors and so lower accessible marker (full name) is used. The third (7c) and fourth example (7d) show the proper names *Ahmad* showing lower accessibility markers in naturally occurring discourse.

- 7 a) Mazigar khapalo ASTANANO TA dars warkawi
 Evening own assistants DAT lesson give
 He teaches his assistants in the evening.
- b) Maskhutan berta NAROGHANTOON TA
 ze aw tar nime Night back hospital to goand tillmid
 Shpe da naarogho muayena kawi
 Night PREP patients diagnose do.PRS.IMP
 At night he visits back the hospital and visits the patients till mid night.
 (Tegey & Robson, 1993)
- c) Za da... AHMAD SARA karkom
 1.SG PREP Ahmad with help.do.PRST.IMP
 I am helping Ahmad.
- d) AHMAD kitab rawro
 Ahmad book bring.PST.PF
 Ahmad bought the book.

The following figure shows the possible encoding for identifiable referent who is inactive in the mind of the interlocutors. The speaker assumes that the listener can identify the referent but the referent is not actively under consideration being newly introduced in the discourse.

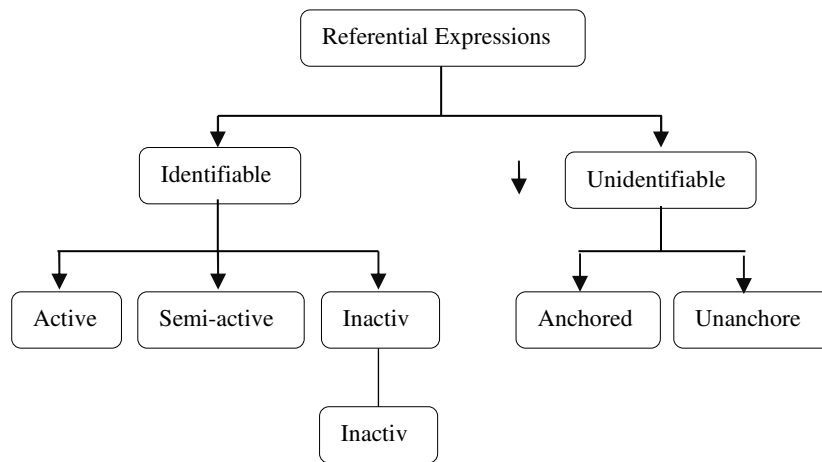


Figure 4.1: The cognitive states of inactive referent in discourse

4.2 Higher accessibility markers in Pashto

The higher accessibility markers are chosen for Pashto DPs if the accessibility of the discourse referents is higher. If the referents are not newly introduced in the discourse but being the topic of the sentence, are easily recognized in the context of discourse, they have higher level of accessibility encoded by higher accessibility markers. Markers of higher accessibility in Pashto include (weak) pronouns, clitics, agreement markers and empty argument (i.e., pro). These are less

informative and often phonologically reduced or deficient (Eric, 2005). They are less informative because the information in the sentence is carried by other referents in the same sentence.

4.2.1 Clitics identifying higher accessible markers

Etymologically, the word clitic is from the Greek word “klinein” which means “to lean” and it refers to the characteristic of the clitic to depend on other element in the clause. Clitic is something that is not integrated into the sentence the way other normal words or infixes are (Anderson, 2005). Clitics are formative that are unstressed, whose behaviour is intermediate between affixes and words (Ignatova, 2008). The term clitic denotes an item which resembles a word but which has the property that it must cliticize (i.e., attach itself) to another word. Typically, a clitic has the phonologically form of a separate word, but cannot be stressed and is obliged to occupy a particular position in the sentence in which it is phonologically bound to an adjoining word, its host (Trask, 1996). Clitic has different syntactic and phonological behaviour and so is described differently from both words and affixes. Both words and affixes are morphemes with different syntactic and morphological behaviour and even different from clitics³.

The clitics in Pashto are higher accessible markers identifying arguments used for those referents which are introduced before and understood in the context of the discourse. The following examples show the clitics identifying arguments in Pashto text.

- 8 a) Charcharak WAR ta owayal che tol kal
 Cricket CL to tell. PST.PF that whole year
 me sandare wayale
 1.SG songs sing. PST.IMP
 The cricket told him that he was singing song the whole year.
- b) megi WAR ta owayal che tol kal
 ant CL to tell. PST.PF that whole year
 DE sandare owyale was WARTa atan kawa
 CL songs sing. PST.IMP now CL DAT dance. do
 The ant replied him that the whole year you sang songs, now dance to it.
 (Tegey & Robson, 1993)

The dialogue in the above examples is between the ‘cricket’ and the ‘ant’. In the first example (8a), the referent (ant) is highly accessible, encoded by the higher accessible marker (clitic *war*) instead of the full NP *Charcharak* or the pronoun *hagha*. Similarly, in the second example (8b), the referent (cricket) is again highly accessible, encoded by the higher accessible markers (clitics *war* and *de*) instead of their respective alternative full name *megi* or pronouns *hagha* and *ta*. The following examples contain the clitics *war* (9a) and *ye* (9b) denoting referents with higher accessibility in natural occurring discourse instead of their proper names or pronouns.

- 9 a) Za WAR sara karkom
 1.SG CL with help.do.PRST.IMP
 I am helping him.

³ See Roberts (2000) and Rahman (2014) for detail of clitics in Pashto

b)	kitab	YE	rawro
	Book	CL	bring.PST.PF
	He brought the book		

4.2.2 Empty Argument Identifying Higher Accessible Markers

Pashto is a pro drop language and the overt subject or object may be realized by the agreement suffixes identifying the empty arguments. The cases where the overt NPs do not occur are the cases where the argument is realized by the phonological silent pro. The empty argument represent the higher accessible markers in Pashto. The following examples show the empty argument realized by pro in text (10a,b) and naturally occurring discourse (10c,d) respectively.

10	a)	.....	bekhi	kharab	day		
		Pro	very	upset	be.PRES		
		He is very upset.					
	b)	magar	sa	kal	.....	lag	wu
		But	this	year	pro	little	be.PST
		But this year, they were few in number.					
		(Tegey & Robson, 1993)					
	c)	.....	raa ye	wro			
		Pro	3.SG.CL	bring.PST.PF			
		He brought it.					
	d)	maa	.....	Pa	market	ke	Walido
		i.SG	pro	PREP	market	in	see.PST
		I saw him in the market.					

The first sentence above (10a) is about a farmer who is very upset because of his loss in the crop of melons. The farmer is the topic of the sentence and so appears as empty argument (pro). The referent here is highly accessible from the context of discourse represented by higher accessible markers (pro). Similarly, the melon is the topic of the next sentence (10b) and not the farmer which is highly accessible from the context of discourse represented by highly accessible markers in a sentence. Same is the case with the examples from natural discourse (10c,d). The following figures shows the activation level higher accessible markers and their encoding possibility in Pashto.

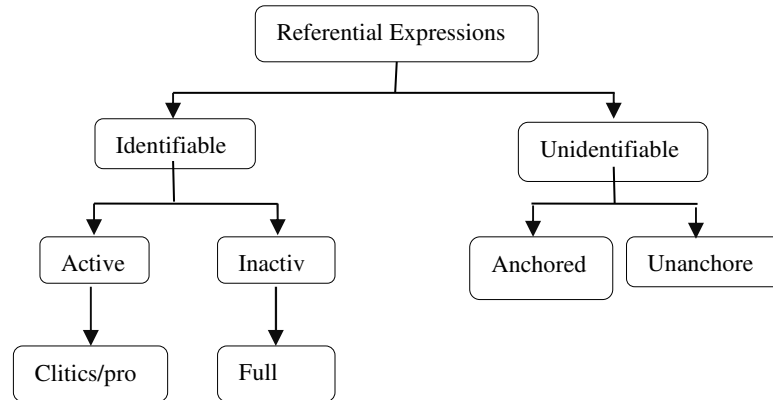


Figure 4.2: **The cognitive states of active referent in discourse**

Both the clitic and pro are higher accessible markers. The pro is used when the identified referent is the topic (understood from the discourse context) and the agreement markers on the verb creates no ambiguity in terms of agreement with the intended referent. If such ambiguity arises, the clitic comes to rescue the pro or full NP/pronoun.

4.3 Accessible markers in Pashto

The accessible markers are somewhere in the middle of the higher accessible and lower accessible markers i.e. they are used when the referents are neither lower nor higher accessible but accessible from the text, context or inferential properties of the referents. They are in the mid of the continuum from lower to higher accessibility markers. The following continuum shows accessibility of referents in terms of their activation level.

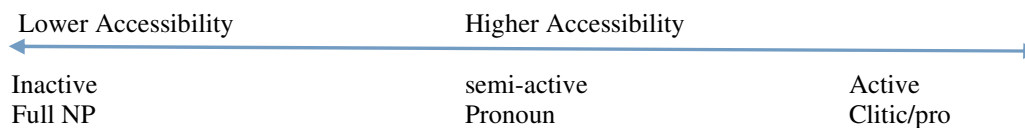


Figure 4.3: **Accessibility markers with respect to their activation status**

4.3.1 Pronominal NPs Identifying Accessible Markers

The pronominals identifying argument are used for those previously introduced before in the context of the discourse and cognitively accessible. The pronominal is more frequent in natural discourse than texts, where the referents are introduced before. The following examples from Pashto text show the pronominals identifying argument cognitively accessible from the context.

- 11a) DWE ta daa pukhtana aw deeni fariza khkari
 3.PL to this of pathan's and religiousduty seem
 They consider it a cultural and religious duty.

b) TAA ta DAR wa rasedo?
 2.SG to 2.CL PERF reach.PST.PF
 Did he reach there?

(Tegey& Robson, 1993)

The following examples from natural discourse represent the accessible markers (pronouns). In the first example (12a), the subject while in second example (12b), both subject and object are represented by pronominals being cognitively accessible from the context.

12 a) HAGHA kitab rawro
 He book bring.PST.PF
 He brought the book.
 b) ZA da HAGHA sara karkom
 1.SG PREP 3.SG with help.do.PREST.IMP
 I am helping him.

The following figure shows the accessible markers (pronouns) in middle of higher (active) and lower (inactive) accessible markers. The pronominal markers are used for the referents which are semi-active in the mind of the speaker being accessible from the context of discourse.

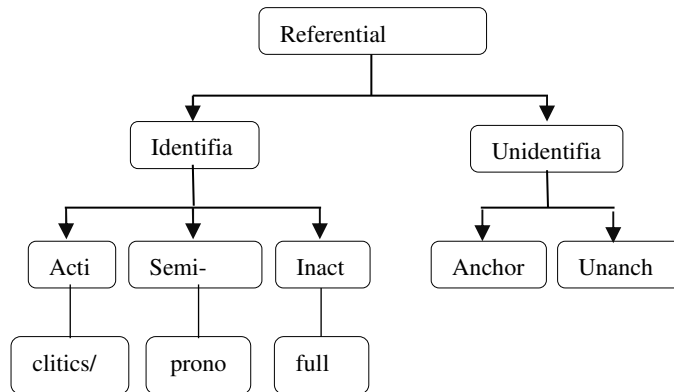


Figure 4.4: The cognitive states of accessible referents in discourse

5.Encoding Possibilities for Urdu referents

Two well known facts about Urdu are the relative free word order and the ability to optionally drop any argument in the clause. But word order in Urdu can only be fully explained in terms of connection between word order and discourse functions or semantic factors of referentiality (Butt & King, 2000). Urdu like Pashto has all types of accessibility markers i.e. lower, higher and accessible markers having the same discourse pragmatic conditions responsible for their occurrence as in Pashto language. But the only difference between the two languages is that whereas Pashto has both pro and clitics identifying higher accessible markers; Urdu has only pro to identify the higher accessible markers. Both the clitic (only in Pashto) and pro (in both Pashto and Urdu) are higher accessible markers. The pro is used when the identified referent is the topic (understood from the discourse context) and the agreement markers on the verb create no

ambiguity in terms of agreement with the intended referent. If such ambiguity arises, the clitic comes to rescue the pro or full NP/pronoun which is only possible in Pashto Language but not in Urdu.

The following examples in Pashto and Urdu respectively express the same meaning. The Pashto example (13a) contains the clitic (*ye*) and the corresponding Urdu example (13b) does not contain any clitic in the clause. The verb in the Pashto clause (13a) contains default agreement markers (-*o*) on the verb showing agreement with all persons (first, second or third person) and the clitic (*ye*) disambiguates the referent to be third person. Such disambiguation of referent is not possible in Urdu because the agreement marker (-*a*) shows agreement with third person singular and no ambiguity arises here. Except this single difference of disambiguating the referents (in Pashto), Urdu and Pashto have the same encoding possibilities for referents.

13)	a)	kitab Book He brought the book.	YE CL	rawr- <i>o</i> bring.PST.PF
	b)	Kitab book He brought the book.		.....lay- <i>a</i> bring.PST.PF

This type of use of clitic in Pashto is only relevant in sentences appearing in past tense because the agreement markers on the verb appearing in past tense are default markers in Pashto and the confusion of agreement is resolved by the use of clitic showing agreement with a particular referent. The agreement markers on the verb marking present tense does not have default agreement markers and so, there is no need of clitic for agreement purposes in Pashto sentence in the present tense. On other hand, Urdu verb does not have default agreement makers on the verb showing either present tense or past tense and so, Urdu sentence does not feel any need for the use of clitic as rescue for agreement purposes.

The following figure shows the activation level of the referents in Urdu which is similar to Pashto except the lack of clitic to identify the active referent which can be only be identified by pro in Urdu⁴. The figure shows that referents encoding possibilities in Urdu are the same like referents encoding possibilities in Pashto except the use of clitic to show higher accessibility marker in Pashto.

⁴ Compare figure 6 with figure 5 showing two possibilities for Pashto active activation level to be encoded by pro or clitic while the same in Urdu is encoded by pro only.

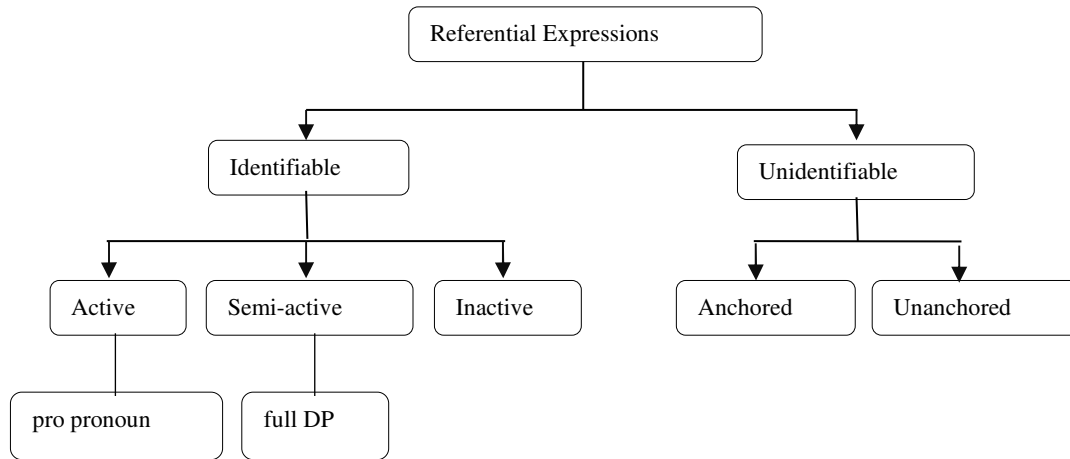


Figure 5.1: The cognitive states of referents in Urdu

6. Conclusion

The data from Pashto text and natural discourse show that there are three encoding possibilities referents in Pashto. The referents can be encoded as full NP, pronominal or clitic/pro. Different pragmatic conditions are identified responsible for these encoding possibilities. These conditions are assumed to correlate with the cognitive accessibility of the referents in the exchange at the time of utterance reflecting the speakers' assumptions about the listener's state of knowledge (Lambrecht, 1994; Belloro, 2007). The clitic/pro is used to identify the argument that is cognitively active in the mind of the interlocutors. The pronominal is used for the referent that is cognitively less accessible; and if the referents are newly introduced and unidentifiable, full NP is used.

The different encoding possibilities for referents is not because of the clause internal syntax but goes beyond the clause internal syntax, i.e., it may take into account pre-suppositionality or topicality pointing to a particular discourse context in which these referents may occur. Through this, the interlocutors cue their partners about the activation level of the referents in line with the information structure related to referents in exchange. The forms of arguments in the sentence thus are in line with the information the speaker assumes the addressee knows, and in case of any chance of misinterpretation, the speaker adapts the form of the sentence accordingly in favour of conveying the intended information.

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