



Prosodic Segmentation and Grammatical Relations: the Direct Object in Kabyle (Berber)

Segmentação prosódica e relações gramaticais: o objeto direto em kabyle (berbere)

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Abstract: The aim of the present paper is to provide evidence for the existence, in Kabyle (Berber), of the grammatical role ‘Direct Object’, and to define it using a non-aprioristic, empirical methodology. The definition, based on the analysis of corpus data, involves formal means pertaining to morphology, syntax and prosody. Prosodic segmentation is not only crucial for the definition of the category; it also serves as supporting evidence for the tightness of the relationship between verb and direct object.

Keywords: direct object; prosody; segmentation; Kabyle; Berber; grammatical relations.

Resumo: O objetivo deste artigo é oferecer evidências para a existência da função gramatical “Objeto Direto” em kabyle (berbere) e defini-lo utilizando uma metodologia empírica, não-apriorística. A definição, baseada na análise de dados de corpus, envolve meios formais pertinentes à morfologia, sintaxe e prosódia. A segmentação prosódica não é apenas crucial para a definição da categoria, mas também serve como evidência em favor da coesão da relação entre verbo e objeto direto.

Palavras-chave: objeto direto; prosódia; segmentação; kabyle; berbere; relações gramaticais.

Submitted on January 16th, 2018.

Accepted on May 12th, 2018.

Introduction

It is not so usual to associate prosody, especially prosodic segmentation, with the analysis of grammatical relations, but as previous work has shown (METTOUCHI, 2013, 2015, 2018 [2011]), considering prosodic cues as formal means with as much structuring potential as linear ordering or morphological marking actually allows the discovery of constructions in the domain of grammatical relations (and other domains too, such as information structure).

Within an empirical, and corpus-based approach, my purpose in this paper is to provide evidence for the existence, in Kabyle, of the grammatical role ‘Direct Object’, different from the semantic role ‘Referential undergoer’, and to define the Direct Object function in a non-aprioristic and language-internal perspective. I show that prosodic boundaries are crucial for the definition of Direct Object function in Kabyle, and that prosodic disfluencies provide evidence for the fact that the verb and its direct object form a constituent.

The paper first provides background information about Kabyle, prosodic units, and grammatical relations. The encoding of grammatical and semantic relations on bound pronouns is then analyzed, and I show that so-called ‘direct object pronouns’ in fact code ‘referential undergoer role’, a function different from direct object. In a third part, noun phrases coreferent to those bound pronouns are characterized, taking into account prosodic boundaries, and I show that their function is within the domain of referent activation, not grammatical relations. In a fourth part, the only noun phrase not coreferent with a bound pronoun, the direct object, is formally defined using syntactic, morphological and prosodic criteria. In a fifth part, proof is given of the tight relationship between verb and direct object, through the analysis of disfluencies and F0 contour.

1. Preliminaries

1.1 Kabyle

Berber languages are spoken in northern Africa, in a zone delimited by the Atlantic Ocean to the West, the Mediterranean to the North, the oasis of Siwa (Egypt) to the East, and the southern borders of Mali and Niger to the South. Those languages constitute a family within the Afroasiatic phylum. Well-known members of the family are, among others, Kabyle (spoken in northern Algeria), Tashelhiyt (Shilha) (spoken

in southern Morocco), and Tamashek and Tahaggart (also called Tuareg), spoken in southern Sahara.

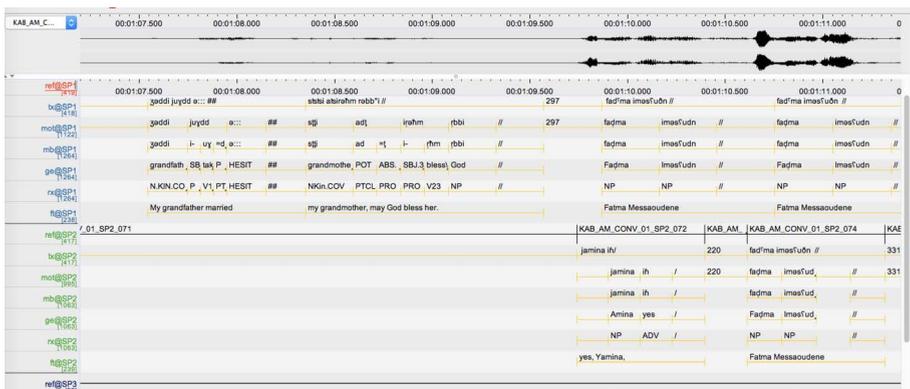
Kabyle has about four million speakers in the north of Algeria. The variety investigated in this paper is a Western one, spoken in the village of Ait Ikhlef, close to the town of Bouzeguene. I collected all the data on fieldwork between 2007 and 2011.

In Kabyle, as in all Berber languages, a minimal predication consists either of a verb and its bound personal pronoun, or of a non-verbal predicate. In this paper I focus on verbal predicates. In addition to this core, the clause may contain noun phrases, and prepositional phrases, as well as adverbs. Within noun phrases, modifiers follow the modified constituent. The language has two genders and two numbers, marked on adjectives, on nouns, and on pronominal affixes and clitics hosted by verbs, nouns and prepositions. It also has two states, marked on nouns.

1.2 Prosodic units and corpus

The corpus on which the study is based comprises, but is not limited to, one hour¹ of transcribed, segmented, annotated and translated narratives and conversations, collected in the field in Kabylie (Algeria) between 2007 & 2011. Examples in this paper are taken from the one-hour corpus.

FIGURE 1 – Layout of the Kabyle Corpus



¹ The Kabyle corpus is accessible and searchable online, at <<http://dx.doi.org/10.1075/sc1.68>. website>.

As shown in Figure 1, morphosyntactic annotation² is displayed on two tiers, “ge” and “rx”, allowing the automatic retrieval of complex queries based on forms. In the case of grammatical relations, only one-to-one form-function mappings were annotated: distinct and dedicated pronominal paradigms were given the label corresponding to their function (see below for expanded discussion on pronouns), but since nouns are only marked for gender, number and state, and since state does not code grammatical role (see below and METTOUCHI, 2018 [2011]), no noun was annotated as subject, direct or indirect object. The question of whether grammatical relations are coded for nouns, through constructions, was left open for investigations, which have been conducted using a query language based on regular expressions.³

An intonation unit is a segment of speech that has a coherent intonation contour (CHAFE, 1994), and is delimited by its boundaries (CRUTTENDEN, 1997), which bear a ‘boundary tone’ (PIERREHUMBERT; HIRSCHBERG, 1990). In Kabyle, Intonation Units are marked by one or more of the following cues:⁴

Main external cues

- (1) final lengthening; (2) initial rush; (3) pitch reset; (4) pause; (5) creaky voice.

Main internal cues

- (1) declination; (2) tonal parallelism, or isotony.

² The following abbreviations are used: ABS absolute state; ABSV absolute pronominal paradigm; ANN annexed state; AOR aorist; ASSOC associative; CAUS causative; CNS shared reference demonstrative; COL collective ; COM comitative; COP copula; DAT dative; EXNEG existential negative; F feminine; GEN genitive; HESIT hesitation; IDP independent pronoun; IPFV imperfective; KIN kinship pronominal paradigm; M masculine; NEG negation; PFV perfective; PL plural; POS positive; POSS possessive pronominal paradigm; PREP prepositional pronominal paradigm; PROX proximal; SBJ subject pronominal paradigm; REAL realis; REL relator; RELSBJ subject relativization circumfix; SG singular; VOC vocative. A list of glosses with definitions, explanations and references can be found on http://corpafroas.huma-num.fr/Archives/KAB/PDF/KAB_AM_ALISTOFGLOSSES.PDF

³ For the syntax of queries using regular expressions, see http://llacan.vjf.cnrs.fr/fichiers/manuels/ELAN/ELAN-Corpa_Search.pdf

⁴ See (IZRE’EL; METTOUCHI, 2015) for more information on the segmentation of the CorpAfroAs corpus of spoken Afroasiatic languages, of which the Kabyle corpus is a part.

The data were segmented into intonation units⁵ on the basis of native speaker perception, and acoustic control with Praat.⁶ Two native speakers were first made to understand that what was asked of them concerned the melodic and rhythmical contour of the unit, not its lexical, grammatical or pragmatic contents. Then the recording was played using Praat, and they were asked to tell where they would insert boundaries in the flow of speech; they indicated that by a beat of the hand on the table. For each beat, the annotator inserted a boundary marker in the Praat textgrid corresponding to the sound file. The units thus delimited were additionally controlled with Praat whenever there was disagreement between the two native speakers. Later, the annotator added units for silent pauses over 200 ms (the number inside indicates duration of the pause in milliseconds), and for breath intakes (coded as BI, followed by the duration of the intake in milliseconds). All examples used for this study were systematically re-controlled with Praat.

The total number of non-pausal intonation units for the whole one-hour corpus is 2671. With breath intakes and silent pauses, the total number of units⁷ is 3974.

Intonation Units are usually considered as either linked to the domain of cognition (CHAFE, 1994) or pragmatics (CRESTI; MONEGLIA, 2005) in some approaches, or as the projection of clause structure (syntactic level) onto the prosodic level (SCHEER, 2011; SELKIRK, 2009; VOGEL, 2006), in other approaches.

In the first type of approaches, intonation units are seen as encapsulating an 'idea' (CHAFE, 1994), or a 'speech-act' (CRESTI; MONEGLIA, 2005). However, the existence of intonation units (formally defined by prosodic cues only) that are not pragmatically autonomous, such as in the following example, points to the fact that there is no necessary mapping between idea/speech-act and intonation unit.

⁵ Annotated as /: non-terminal boundary; //: terminal boundary.

⁶ <http://www.fon.hum.uva.nl/praat/>

⁷ Each unit has been numbered following a precise methodology : ISO code of the language, initials of the author, genre (NARR is for narrative, CONV for conversation), number of the file, number of the unit. Thus, all examples are easily found in the corpus.

boundaries are represented by square brackets. Illustrative examples are given below, and the reader is referred to the abovementioned publications for contextualized examples taken from spontaneous corpora.

- (a) [j-ʃʃfa (ayr^um)]SBJ3.SG.M-eat\PFV (bread\ABS.SG.M)
‘He ate (bread)’
- (b) [j-ʃʃfa wqʃif (ayr^um)]SBJ3.SG.M-eat\PFV child\ANN.SG.M (bread\ABS.SG.M)]
‘The boy ate (bread)’
- (c) [aqʃif j-ʃʃfa ayr^um]child\ABS.SG.M SBJ3.SG.M-eat\PFV bread\ABS.SG.M
‘The boy ate bread’
- (d) aqʃif [j-ʃʃfa (ayr^um)]child\ABS.SG.M /SBJ3.SG.M-eat\PFV (bread\ABS.SG.M)
‘The boy, he ate (bread)’
- (e) [j-ʃʃfa (ayr^um)] wqʃif-nni [SBJ3.SG.M-eat\PFV (bread\ABS.SG.M)/ child\ANN.SG.M-CNS]
‘He ate (bread), that boy’

Those types have information structure and referent activation functions, and the grammatical role of nouns is not systematically coded by the construction (METTOUCHI, 2018 [2011]). The information structure function of such constructions as (a) is (sub-) topic continuation: the protagonist is the same, and the narrative is carried forward; (b) introduces a new episode in a narrative or a new subtopic in a conversation; (c) builds a background for further developments, recapitulating a salient preceding situation, so that the listener grasps the whole situation and its importance for the current discourse; (d) marks a shift in perspective or contrast with previous expectations; and (e) reactivates a referent that had lost its active or semi-active status (METTOUCHI, 2015, 2018 [2011]).

As mentioned above, not all nouns are transparently coded (i.e. formally recognizable, vs. retrieved by inference only) for grammatical role in Kabyle. Detailed evidence is given in Mettouchi (2018 [2011]) in support of that claim.

1.3 Grammatical relations

My approach does not consider as a given the fact that in Kabyle, grammatical relations are encoded on all nominal/pronominals. Indeed, as shown in Mettouchi (2013, 2018 [2011]), unless preceded by a preposition, only some nominals, those inside the prosodic group of the verb, may be attributed a grammatical role. Nominals belonging to

the sentence, but situated before or after the prosodic boundaries of the prosodic group of the verb can be coreferent to a bound pronoun that has a given grammatical or semantic role, but they do not, either through morphology or construction, encode such roles. Their function is more centrally in the domain of information structure and referent activation, as mentioned in the preceding part (see METTOUCHI, 2015, 2018 [2011]) for extended and commented examples from my corpus).

In that respect, this study differs from works that take the existence of the category ‘direct object’ as not needing to be established within a specific language, nor defined in a more formal way than in Matthews (2007) for instance:

direct object (DO) An *object traditionally seen as identifying someone or something directly involved in an action or process: e.g. *my books* in *I might leave my books to the library*, where it is distinguished from the *indirect object *to the library*. Hence, in particular, the object typically next to the verb in English, one marked by the accusative case in German, and so on. (MATTHEWS, 2007, p. 106)

object (O) 1. An element in the basic sentence construction of a language such as English which characteristically represents someone or something, other than that represented by the *subject (1), that is involved in an action, process, etc. referred to. E.g. *him* in *I met him*; both *her* and *afflower* (respectively the *indirect object and the *direct object) in *I will give her afflower*; also, on the assumption that it is syntactically the same element, *that I did* in *I said that I did*. 2. An element seen as standing in a similar relation to a preposition: e.g. *Washington* in *from Washington*. 3. Any element, in any type of language, which characteristically includes the semantic role of *patient. Cf subject (3): thus, in typological studies, a language may be classified as an *SVO language simply because that is the commonest order, in texts, of agent, verb, and patient. (MATTHEWS, 2007, p. 272)

patient (P) 1. Noun phrase or the equivalent that identifies an individual etc. undergoing some process or targeted by some action. E.g. *the house* is a patient in *I painted the house*; *Mary* in *I kissed Mary*. 2. Thence of a syntactic role which is characteristically that of a patient. E.g. a **direct object** in English tends to be a patient, especially a patient rather than an *agent.

Therefore **direct objects** and elements in other languages which are in this respect equivalent to them may be called, in general, patients.

The sense is that of Latin *patiens*, ‘suffering’ or ‘undergoing’. Abbreviated to P especially in cross-linguistic studies, where opp. A for *agent (2); also opp. S (3). (MATTHEWS, 2007, p. 290)

My approach also differs from studies that, having taken the category ‘direct object’ for granted, and having either selected typical examples from corpora, or having created sentences for reading experiments, provide findings about ‘the prosody of direct objects’.

While I acknowledge the importance and relevance of those studies, my perspective is different in that it includes prosodic forms in the very definition of the category in Kabyle: there is no ‘prosody of direct objects’, but rather, a construction involving syntactic, morphological and prosodic forms which (a) encodes the ‘direct object’ function, and (b) translated into an automatic query, allows the retrieval of all and only the direct objects in a spoken corpus of Kabyle, non-aprioristically annotated according to forms.

2. Bound pronouns and their roles

While nominals are most of the time absent, bound pronouns are noticeable and frequent in Kabyle. The language has several pronominal paradigms (METTOUCHI, 2017, p. 10-11). Among those, some are hosted by the verb: the subject affix, the absolutive clitic, and the dative (indirectly affected argument) clitic.

Subject pronouns are affixes (their position relative to the verb is fixed), and only appear with verbs; dative pronouns are clitics (they undergo climbing in contexts of negation, relativization, or irrealis mood). This is also true for absolutive pronouns, which, additionally, are also hosted by some non-verbal predicates (they are their sole argument).

2.1 Subject affixes and dative (indirectly affected argument) clitics

Subject affixes code various participant roles, among them sole argument of intransitive verbal constructions (2), affecting argument of active transitive constructions (3), and affected argument of passive transitive constructions (4).

(2) atsali arθkana /

ad	t-ali	ar	tkanna	/
POT	SBJ.3SG.F-go_up \AOR	to	attic\ANN.SG.F	/
PTCL	PRO-V14	PREP	N.OV	/

'she would go up to the attic'
(KAB_AM_NARR_01_0862)



(3) θssuliθid /

t-ssuli=t-dd	/
SBJ.3SG.F-go_up \CAUS.PFV=ABSV.3SG.M=PROX /	
PRO-V14=PRO=PTCL /	

'she pulled him up'
(KAB_AM_NARR_01_0968)



(4) aθtʃwəθjənt /

ad	ʃwəθčč-nt	/
POT	eat\PASS.AOR- SBJ.3PL.F /	
PTCL	V13%-PRO	/

'(the little girls were) to be eaten alive'
(KAB_AM_NARR_01_0710)



Dative clitics code the indirectly affected argument: addressee, recipient as in (5), positively or negatively affected participant as in (6)...

(5) θəfkajasəntətʃ /

t-fka=asnt=t	/
SBJ.3SG.F-give \PFV= DAT.3PL.F =ABSV.3SG.M /	
PRO-V13%=PRO=PRO	/

'she gave it to them (her sisters)'
(KAB_AM_NARR_01_0537)



(6) <ça fait> θəmmuθas θəqʃiʃθ iZafiwa θaʃlits //

<ça fait>	t-mmut=as	təqʃiʃt	i
it_is	SBJ.3SG.F-die \PFV= DAT.3SG	girl\ANN.SG.F	DAT
CSW.FRA	PRO-V24=PRO	N.OV	DEMPRO

Zafiwa	Taʃliʃ
Zafiwa	daughter_of_Ali
N.P.	N.P.

'you were saying she lost a daughter (lit. 'a girl died on her'), Zahwa Taʃliʃ ?'

θəmmuθas θmənzuθ //

t-mmut=as	tmənzut	//
SBJ.3SG.F-die \PFV= DAT.3SG	elder\ANN.SG.F	//
PRO-V24=PRO	N.OV	//

'Her eldest daughter died (on her)'

(KAB_AM_CONV_01_SP3_31 & SP1_276)



Those characteristics lead me to define absolutive pronouns in Kabyle as coding the role of referential undergoer.

Pronominal paradigms hosted by verbs are therefore not homogeneous in terms of categories: whereas the subject affix clearly codes grammatical role, the absolutive and the dative bound pronouns code semantic roles in Kabyle.

3. Coreferent nominal

As is the case for all bound pronouns in Kabyle, the referent of absolutive pronouns can be expanded by a coreferent nominal. Whereas pronouns come in various paradigms, nouns must be either in the absolute or in the annexed state. This binary morphological marking, covert in the case of borrowings and for some classes of nouns with a special phonological structure, is marked differently depending on the gender and the number of the noun (table 1).

TABLE 1 – Gender, Number and State in Kabyle

	Masculine		Feminine	
	Singular	Plural	Singular	Plural
Absolute	a-my̅ar	i-my̅ar-n	t-a-my̅ar-t	t-i-my̅ar-in
Annexed	w-my̅ar	j-my̅ar-n	t-my̅ar-t	t-my̅ar-in

(root *my̅ar*, ‘old person’)

The state distinction plays a structural role in the language. It is the backbone of the whole grammatical system of Kabyle and is functional at the level of the phrase as well as at the level of the clause and the sentence (METTOUCHI; FRAJZYNGIER, 2013; METTOUCHI, 2014)

In Kabyle, the function of the annexed state is to “provide the value (in the logical sense) for the variable of the function grammaticalized in a preceding constituent”⁹ (METTOUCHI; FRAJZYNGIER, 2013, p. 2),

⁹ “A grammaticalized function is a function that is represented by a morpheme, which may be affixal (bound pronouns, gender-number markers) or non-affixal (prepositions, relational morphemes). A function is grammaticalized when it is coded by some grammatical marker.” (METTOUCHI; FRAJZYNGIER, 2013, p. 2)

while the absolute state “is the default form of the noun and does not carry any specific function.” (METTOUCHI; FRAJZYNGIER, 2013, p.2).

Nouns in the annexed state always follow the marker for whose function they are a variable. Therefore, a noun in the annexed state cannot be the first element of any structure in Kabyle. Nouns in the annexed state can be complement of prepositions, of relational nouns, they can be coreferent to a pronoun bound to a verb or a noun... Nouns in the absolute state are not constrained in position or function; in a binary system where nouns must be in either the annexed or the absolute state, their contexts of occurrence are in complementary distribution with the contexts of the annexed state, they are the default member of the opposition. This does not prevent them from being part of constructions which are themselves functional: ‘verb followed by noun in the absolute state’ is a construction with a function no less marked than ‘verb followed by noun in the annexed state’.

3.1 Computing coreferentiality

Coreferent nouns are in the absolute state when they precede the functional element with which they are coreferent, here the subject pronoun (12), and in the annexed state when they follow it (13).

(12) *argaz ađir^{uh} ađjawi θajuja ađiçrəz /*

argaz	ad	i-ruh	ad	j-awi
man\ABS.SG.M	POT	SBJ.3SG.M-go\AOR	POT	SBJ.3SG.M-bring\AOR
N.OV		PTCL PRO-V24		PTCL PRO-V14

tajuga	ad	i-kərz /
pair_of_oxen\ABS.SG.F	POT	SBJ.3SG.M-plough\AOR /
N.OV		PTCL PRO-V23.LAB /

The husband would go and bring a pair of oxen to plough,

(KAB_AM_NARR_03_0096)



(13) *nəy ma issuθidd wərgazis /*

nəy ma	i-ssutr=as=dd	wərgaz-is /
or if	SBJ.3SG.M-request\PFV.CAUS=DAT.3SG.M=PROX	man\ANN.SG.M-
CONJ CONJ	PRO-V24=PRO=PTCL	POSS.3SG /

or when her husband requests something,

(KAB_AM_NARR_03_1125)



pronoun: such nouns can be coreferent to other types of bound pronouns, including those hosted by nouns. Here is an instance of coreference with the subject affix:

- (16) *dəməddaʃ# #¹⁰ θa# θasumtanni itssummuθ akkən / wəmʃifənni /*
 t-ddəm=dd aʃ# ##
 SBJ.3SG.F-grab\PFV=PROX FS# ##
 PRO-V23=PTCL FS# ##
- ta# tasumta-nni i-ʃsummut akk-ən /
 FS# pillow\ABS.SG.F-CNS **SBJ.3SG.M-use_as_pillow**IPFV thus-DIST /
 FS# N.OV-DEM PRO-V24.PFX.APHO ADV-AFFX /
- wəmʃif**-nni /
cat\ANN.SG.M-CNS /
 N.OV-DEM /
- 'she took the pillow on which he slept, the cat'*
 (KAB_AM_NARR_01_0445-0448)
- 

One cannot therefore consider that a noun in the annexed state following the prosodic group of the verb is a direct object (or more generally, that it has a grammatical role, given that it can corefer with several types of pronouns). As mentioned in part 1.2., its role is within the domain of referent activation – the noun is used to reactivate a referent that had lost its active or semi-active status (METTOUCHI, 2018 [2011], p. 273).

The same is true for nouns preceding the prosodic group of the verb, and co-referent with absolutive pronouns. They are in the absolute state (as are all nouns preceding the verb), and encode contrastive comments (METTOUCHI, 2018 [2011], p. 272), regardless of their coreferent pronoun (e.g. the subject affix in example (17)).

¹⁰ A single crosshatch # at the end of a sequence of syllables indicates a truncated word. A double crosshatch following a series of words indicates a truncated intonation unit (in general due to disfluencies, but also to interruptions in conversations). See (IZRE'EL; METTOUCHI, 2015) for the notion of abandoned intonation unit.

(17) *asənduqagi / atʰtʰawiðʰ ijəmmak //*

asənduq-agi /
chest\ABS.SG.M-PROX1 /
 N.OV-AFFX /



ad=t t-awi-d i jəmma-k //
 POT=**ABSV.3SG.M** SBJ2-bring\AOR-SBJ.2SG DAT mother\ANN.SG.F-
 KIN.2SG.M//
 PTCL=PRO CIRC1-V14-CIRC2 DEMPRO N.KIN.COV-PRO //
 'this box, you will take it to your mother'
 (KAB_AM_NARR_02_783-784)

A noun may also appear before the verb within the prosodic group of the verb, and be coreferent to an absolutive pronoun as in (18) below. Grammatical and semantic relations are marked by the bound pronouns, nouns are referential expansions of those pronouns, and the structure recapitulates the preceding events and situation in a condensed way, as a synthetic explanatory comment on the preceding discourse (METTOUCHI, 2015, p. 130).

(18) *azdduznni j̄tsawiθuβəhri /*

azdduz-nni i-t̄t̄awi=t ubəhri /
big_stick\ABS.SG.M-CNS SBJ.3SG.M-bring\IPFV=**ABSV.3SG.M** wind\ANN.
 SG.M /
 N.OV-DEM PRO-V14.PFX=PRO N.OV /
 'the wind moved the stick'
 (KAB_AM_NARR_01_0756)



In sum, in Kabyle, grammatical and semantic relations are coded by pronouns, and coreferent nouns are involved at other levels of speech organization: reference, referent activation, information structure.

4. Direct objects

Only one noun can appear within the prosodic group of the verb without being coreferent to a bound pronoun. It is in the absolute state, it follows the verb (which itself necessarily bears a subject affix), either immediately, or separated from it by an adverb, a postverbal negator, and/or a noun in the annexed state. This characterization I consider to be the formal definition of direct objects in Kabyle.

- (25) ə:: / nəkki fɸiγdd zɪɸnɪ / θəssəhfəð^siɸi jəmmaɸbb^oað^s / θəssəhfəð^siɸi aɸrum /
 θəssəhfəð^siɸi ləsfəŋz / θəssəhfəð^siɸi ə:: / BI_412 a:: səksu /
 ə:: / nəkki fɸi-γ=dd zik-nɪ /
 HESIT / IDP.1SG remember\PFV-SBJ.1SG=PROX long_ago-CNS /
 HESIT / PRO V13%-PRO=PTCL ADV-DEM /
- t-ssəhfəð=iɸi jəmma aɸwwaɸ /
 SBJ.3SG.F-learn\CAUS.PFV=DAT.1SG mother\ANN.SG.F pancake_soup\ABS.
 SG.M /
 PRO-V24=PRO N.KIN.COV N.OV /
- t-ssəhfəð=iɸi aɸrum /
 SBJ.3SG.F-learn\CAUS.PFV=DAT.1SG bread\ABS.SG.M /
 PRO V24 PRO N.OV /
- t-ssəhfəð=iɸi ləsfəŋz /
 SBJ.3SG.F-learn\CAUS.PFV=DAT.1SG doughnut\ABS.SG.M /
 PRO V24 PRO N.COV /
- t-ssəhfəð=iɸi ə:: /
 SBJ.3SG.F-learn\CAUS.PFV=DAT.1SG HESIT /
 PRO V24 PRO HESIT /
- a:: səksu /
 HESIT cuscus\ABS.SG.M /
 HESIT N.COV /
- 'ehm, I remember in the past, my mother taught me (how to cook) pancakes, she
 taught me (how to cook) bread, (how to cook) doughnuts, she taught me (how to cook)
 ehm, cuscus'*
- (KAB_AM_NARR_03_0192-0200)



It is important though, that this intuition be supported by formal criteria. Among the conditions listed in the preceding part, the fact that the noun is in the absolute state and the fact that there is no coreferent pronoun are met, but here the noun is not inside the prosodic group of the verb. Does that mean that one of the features of direct objects as I defined them is to be taken out of the definition? I argue that on the contrary, such examples in fact support my claim concerning the formal definition of the construction.

Indeed, we do not simply have a neat prosodic boundary separating the noun from the preceding verb. What we have, and that we can take into account thanks to a precise transcription of the spoken data, is a boundary that is so to say bridged by prosodic phenomena that are continuation cues: such nouns in the absolute state are systematically preceded, before the prosodic boundary, by:

- (a) a hesitation marker (this is the most frequent situation) (26)
- (b) a false start resulting in an interrupted IU, followed by a restart (27)
- (c) a rising boundary tone (28)

(26) *awnəʃkəy a::: / ifr^əaxa //*
 ad =wən əfk-y a::: / ifrax-a //
 POT=DAT.2PL.M give\AOR-SBJ.1SG **HESIT** / bird\ABS.PL.M-PROXa //
 PTCL=PRO V13%-PRO HESIT / N.OV-AFFX //
'and I'll give you ehm... those birds'
 (KAB_AM_NARR_02_176-177)



(27) *ixədmas θa:::# ## θabburθ duzzal /*
 i-xdəm=as ta:::# ##
 SBJ.3SG.M-make\PFV=DAT.3SG **FS:::# ##**
 PRO-V23=PRO FS ##
 tabburt d uzzal /
 door\ABS.SG.F COP iron\ABS.M.SG /
 N.OV PRED N.OV /
'he put on it an iron door'
 (KAB_AM_NARR_02_708-710)



(28) *asjini / hafama θəʃkawθəddak^o / θaδ^oaδəʃt taδ^oaδəʃθ //*
 ad=as j-ini /
 POT=DAT.3SG SBJ.3SG.M-say\AOR /
 PTCL=PRO PRO-V13% /
 hafama t- fka-wt=dd ak^o /
 only_when SBJ2-give\PFV-SBJ.HORT.2PL=PROX all /
 CONJ CIRC1-V13%-CIRC2=PTCL ADV /
 taɖaɖəʃt taɖaɖəʃt //
 finger\ABS.SG.F finger\ABS.SG.F //
 N.OV N.OV //
'he would say, not until you each give me, one of your fingers'
 (KAB_AM_NARR_02_171-173)



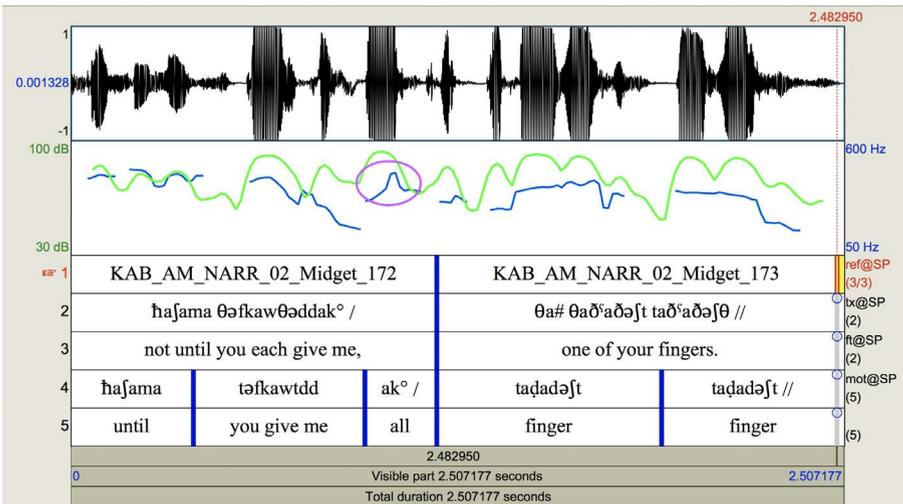
The first two phenomena are disfluencies, they might very well have ended up in an abandoned intonation unit, followed by a complete syntactic reformulation. But this never happens with direct objects in my data. On the contrary, disfluencies, some linked to planning issues and others to situational factors in the interaction, are systematically filled in by prosodic materials pertaining to continuation strategies, such as lengthening of a hesitation marker (itself a filler) or of a false start, and the sequence is immediately resumed in the form of the expected noun

in the absolute, the direct object: *ifrax-a* in (26), *tabburt* in (27). This can also be seen in Figure 1 and example (16).

This shows that in terms of cognitive processing, there is a strong relationship between the prosodic group of the verb and its stranded object.

The third phenomenon involves a continuative boundary tone, as shown in the Praat picture below on *ak°*, in example (28), with a value of 445 Hz:

FIGURE 2 – Praat acoustic analysis of example 28 (F0 and Intensity curves)



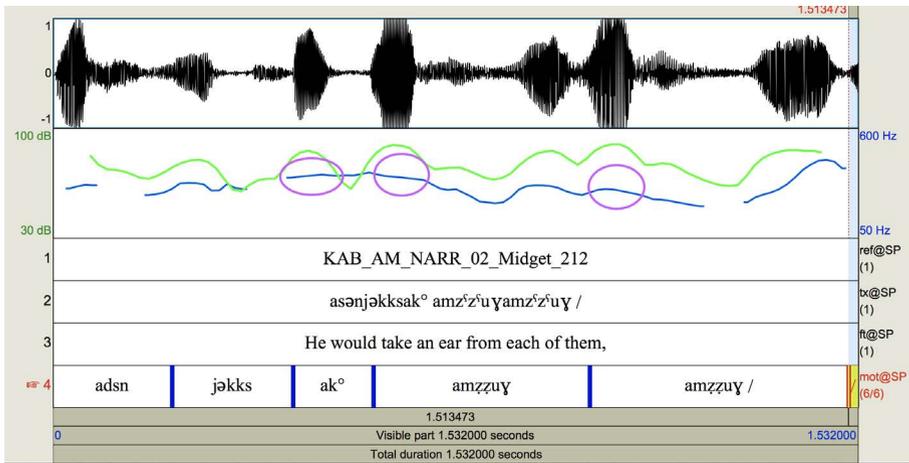
Interestingly, in example (28), as elsewhere in my data for similar examples, the continuative tone is correlated to a focal prominence on the last word of the unit, here the adverb (93 dB), and a highlighting of the direct object (with high values ranging from 89 to 91 dB): in a display of suspense and disclosure, the storyteller plays on the listener’s expectations in her rendition of the young hero’s extravagant demand to his brothers: ‘I won’t give you the partridges I hunted, for you to show our father that you are good hunters, until you each give me... one of your fingers!’

On the contrary, when the direct object is within the prosodic group of the verb, the contour is smoother, in a rising-falling curve, as in figure 3 below, corresponding to example 30:

- (30) *asənjəkksak^o amz^zʷuyamz^zʷuy /*
- | | | |
|---------------|-------------------------|-----------------|
| ad=asn | j-əkks | ak ^o |
| POT=DAT.3PL.M | SBJ.3SG.M-take_away\AOR | all |
| PTCL=PRO | PRO-V23 | ADV |
| amzzuy | amzzuy / | |
| ear\ABS.SG.M | ear\ABS.SG.M / | |
| N.OV | N.OV / | |
- He would take an ear from each of them,
KAB_AM_NARR_02_Midget_212
- 

The values for the adverb and the direct object are respectively 363 Hz/85 dB for *ak^o*, and 356 Hz/89 dB for the first *amzzuy*, and 292 Hz/89 dB for the second one.

FIGURE 4 – Praat acoustic analysis of example 30 (F0 curve and Intensity)



The preceding example is a special distributive construction of the direct object, chosen for its parallelism with (28), and therefore might show slightly atypical values, but the following one is quite standard:

direct object. They also show typical rhetorical features: focus is marked by high intensity values, both on the preceding element, and on the direct object itself, with sometimes anticipatory pauses as well, which increase suspense and rhetorical effect.

6. Conclusion and discussion

I have shown that the Direct Object role is marked by a dedicated construction involving a noun in the absolute, different from the semantic role of referential undergoer, which is coded by the use of an absolutive bound pronoun cliticized on a verb or verbal head.

I have given evidence for the crucial role of prosody in the formal definition of the construction, which involves prosodic boundaries: the Direct Object is a noun in the absolute state, immediately following the verb, or following <the verb followed by a noun in the annexed state> or following <the verb followed by an adverb> or following <the verb followed by a postverbal negator>, within the prosodic group of the verb.

I have shown that apparent counterexamples to that definition, namely occurrences where the noun in the absolute is detached from the prosodic group of the verb and appears in a separate Intonation Unit, in fact contain traces of a tight relationship between Verb and Direct Object: those are either disfluencies or stylistic devices, and in both cases, they contain evidence of integration between the prosodic group of the verb and the intonation unit containing the noun in the absolute: in the case of disfluencies, hesitation markers or false starts are lengthened and the sequence is immediately resumed. In the case of stylistic devices, such as anticipatory/delayed focus, a strong rising tone with continuative value informs the addressee that the prosodic group of the verb is not complete, and that the following sequence is highlighted.

In terms of method and background assumptions, the present study shows how important it is to uncover language-internal categories through the empirical study of spontaneous data, transcribed, segmented and annotated with as few aprioristic assumptions as possible. Without a notation of prosodic boundaries based on acoustic and perceptual cues rather than on syntactic or pragmatic or semantic assumptions, and without precise transcription of hesitations, false starts and pauses, it would not have been possible to conduct the investigation presented in this paper.

Moreover, the approach adopted in this study is also theoretically different from most treatments of the role of prosody in relation to grammar. I do not discard phenomena (disfluencies and stylistic devices) that are usually ascribed to ‘other levels’ of language analysis, only retaining the prosodic boundaries that are congruent with phrasal, clausal or sentential syntactic boundaries. I consider that prosodic cues are to be treated as elements of the fabric of language, just like morphological marks, linear ordering, and other formal coding means are. I do not view prosody as a separate module, and intonation units as a projection of other structural levels of grammar, or as a pragmatic unit with a single functional value (speech-act or other). My findings plead for an integrated view of prosody, closely interacting with syntax, semantics, phonology, information structure, and all levels of human communication and cognition, in a way that is best represented as a complex weaving of various threads, rather than a piling up of neatly stacked and hierarchically organized layers. I suggest that what linguists have first separated into different domains in order to be able to address problems in a structured, progressive and modular way, should not be reified into a representation of what language actually is. The various forms that we are able to isolate as elements contributing to the construction of meaning, are in fact part of a complex whole whose interrelations are still to be fully understood.

Acknowledgements

I am grateful to the two anonymous reviewers for their appreciation and comments, and hope, thanks to their suggestions, to have improved the explicitation of the approach and methodology so that those can be tested on other languages.

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