An Investigation on the Forms of Negation in Turkish: Towards a Formal Representation

Negation is the denial of a proposition or some part of it, and it is realized in two forms. One form is the *standard (or internal) negation,* which takes scope over verbal predicates while the other, *sentential (or external) negation*, operates on sentence meanings, namely propositions (Emeksiz, 2010). Sentential negation is also thought to have the widest scope in the logical structure of the sentence (Emeksiz, 2010). It is proposed that there are syntactic (Tura, 1981) and morphological (Taylan, 1986) distinctions between these two forms. This study is a preliminary investigation of these distinctions to create lexical items and phrase structure rules towards a formal representation of these two forms of negation.

Tura (1981) presents four ways to mark negation in Turkish. In this study, two of them are relevant: the one with the suffix *-mA*; employed by verbal predicates after the verb, and the one with the predicate *değil* 'not'; a verbal predicate embedded under *değil* (Taylan, 1986). Tura (1981) makes a syntactic distinction between the negation with the suffix *-mA* (verbal negation) and the one with *değil* 'not' (sentential negation). Consistent with the analyses in (Tura, 1981), *değil* is claimed to be used in nominal and verbal clauses functioning as external negation in (Taylan, 1986).

It is not possible for all sentences with a verbal predicate to be embedded under *değil* 'not'. Taylan (1986) provides certain restrictions on the tense, aspect, and modality suffixes that the embedded verb may take. With the aim of clarifying where *değil* will be included in the grammar, *değil*'s interaction with *gibi*, which itself is analyzed as a raising predicate, is investigated. According to their relative distributions and their interaction with raising, it is concluded that external negation and sentential negation have different structures and different translations, hence different meanings. The study proposes a way of presenting explicit rules to construct a grammar for standard, sentential, and double negation in the light of these investigations.

Keywords: negation, standard negation, sentential negation, double negation

Appendix

The grammar that is constructed in this study aims to generate the sentences below and address the grammatical and morphological differences among these sentences:

i. Affirmative sentence:

Sen uyu-DI/-mIş/-sA/-((A/I)r/-z)/-(y)AcAK/-(I)yor/-mALI/-mAktA-(sI)n.
You sleep-past[1]/past[2]/cond/aor/fut/prog[1]/obl/prog[2]-2sg
'You slept/had slept/(if you sleep)/sleep/will sleep/are sleeping[1]/must sleep/are sleeping[2].'

ii. Sentence with verbal negation:

'Sen uyu-mA-DI/-mIş/-sA/-((A/I)r/-z)/-(y)AcAK/-(I)yor/-mALI/-mAktA-(sI)n.'
You sleep-NEG-past[1]/past[2]/cond/aor/fut/prog[1]/obl/prog[2]-2sg
'You did not sleep/had not slept/ (if you do not sleep)/do not sleep/will not sleep/are not sleeping[1]/must not sleep/are not sleeping[2].'

iii. Sentence with sentential negation:

Sen uyu-mIş/-(y)AcAK/-(I)yor/-mAktA değil-(sI)n.
You sleep-past/fut/prog[1]/prog[2] NOT-2sg
'You are not such that you had slept/will sleep/are sleeping[1]/are sleeping[2].

iv. Sentence with double negation:

Sen uyu-mA-DI/-mIş/-((A/I)r/-z)/-(y)AcAK/-(I)yor/-mAktA değil-(sI)n.
You sleep-NEG-past[1]/past[2]/aor/fut/prog[1]/prog[2] NOT-2sg
'You are not such that you did not sleep/had not slept/ do not sleep/will not sleep/are not sleeping[1]/are not sleeping[2].

Additionally, the grammar aims not to allow sentences below:

v. Sentence with sentential negation:

*Sen uyu-DI/-sA/-((A/I)r/-z)/-mALI değil-(sI)n.
You sleep-past[1]/cond/aor/obl/ NOT-2sg
'You are not such that you slept/(if you) sleep/sleep/must sleep.

vi. Sentence with double negation:

*Sen uyu-mA-sA/-mALI değil-(sI)n.
You sleep-NEG-cond/obl/ NOT-2sg
'You are not such that you (if you) sleep/must sleep.

References

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A Grammar for Standard, Sentential, and Double Negation

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Below, in the appendices A, B, and C, I propose a way of presenting explicit rules to construct a grammar for standard, sentential, and double negation.

Appendix A

TAM markers:

When tense/aspect/modality markers co-occur, they appear in the order given below (Göksel & Kerslake, 2005):

1	**2**	**3**	**4**	**5**
			Copular markers	
-(y)A (possibility)	-(y) Abil (possibility)	-DI (perfective)	-(y)DI (past copula)	-DIr
	-(y)Iver (non-premeditative)	-mIş (perfective/ evidential)	-(y)mIş (evidential copula)	(generalizing modality)
			-(y)sA (conditional copula)	
	-(y)Agel	-sA (conditional)		
	-(y)Ayaz	-(A/I)r/-z (aorist)		
	-(y)Akal	-(y)AcAK (future)		
	-(y)Adur	-(I)yor (imperfective)		
		-mAlI (obligative)		
		-mAktA (imperfective)		
		-(y)A (optative)		

We are interested in the TAM markers in the third column. To be able to address the morphological differences between standard, sentential, and double negation, we need to separate the verbs in the third column into three as follows:

3		
3.1	**3.2**	**3.3**
-mIş (perfective/ evidential)	-DI (perfective)	-sA (conditional)
-(y)AcAK (future)	-(A/I)r/-z (aorist)	-mAlI (obligative)
-(I)yor (imperfective)		-(y)A (optative)
-mAktA (imperfective)		

Appendix B

The grammar that I attempted to construct in Appendix C aimed to generate the sentences below and address the grammatical and morphological differences among these sentences:

i. Affirmative sentence:

Sen uyu-DI/-mIş/-sA/-((A/I)r/-z)/-(y)AcAK/-(I)yor/-mALI/-mAktA-(sI)n.
You sleep-past[1]/past[2]/cond/aor/fut/prog[1]/obl/prog[2]-2sg
'You slept/had slept/(if you sleep)/sleep/will sleep/are sleeping[1]/must sleep/are sleeping[2].'

ii. Sentence with verbal negation:

'Sen uyu-mA-DI/-mIş/-sA/-((A/I)r/-z)/-(y)AcAK/-(I)yor/-mALI/-mAktA-(sI)n.'
You sleep-NEG-past[1]/past[2]/cond/aor/fut/prog[1]/obl/prog[2]-2sg
'You did not sleep/had not slept/ (if you do not sleep)/do not sleep/will not sleep/are not sleeping[1]/must not sleep/are not sleeping[2].'

iii. Sentence with sentential negation:

Sen uyu-mIş/-(y)AcAK/-(I)yor/-mAktA değil-(sI)n.
You sleep-past/fut/prog[1]/prog[2] NOT-2sg
'You are not such that you had slept/will sleep/are sleeping[1]/are sleeping[2].

iv. Sentence with double negation:

Sen uyu-mA-DI/-mIş/-((A/I)r/-z)/-(y)AcAK/-(I)yor/-mAktA değil-(sI)n.
You sleep-NEG-past[1]/past[2]/aor/fut/prog[1]/prog[2] NOT-2sg
'You are not such that you did not sleep/had not slept/ do not sleep/will not sleep/are not sleeping[1]/are not sleeping[2].

Additionally, the grammar should not allow sentences like:

v. ***Sentence with sentential negation:***

*Sen uyu-DI/-sA/-((A/I)r/-z)/-mALI değil-(sI)n.
You sleep-past[1]/cond/aor/obl/ NOT-2sg
'You are not such that you slept/(if you) sleep/sleep/must sleep.

vi. ***Sentence with double negation:***

*Sen uyu-mA-sA/-mALI değil-(sI)n.
You sleep-NEG-cond/obl/ NOT-2sg
'You are not such that you (if you) sleep/must sleep.

Appendix C

Let's first present the lexical items:

1. Noun related item:

(1) $\begin{bmatrix} \text{PHON} & /\text{sen}/ \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{n} \\ \text{AGR} & \text{2sg} \end{bmatrix} \end{bmatrix} \end{bmatrix}$

2. Case:

(2) $\begin{bmatrix} \text{PHON} & // \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{k} \\ \text{CASE} & \text{nom} \\ \text{AGR} & [1] \end{bmatrix} \\ \text{COMPS} & \begin{bmatrix} \text{FIRST} & \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{n} \\ \text{AGR} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{REST} & \text{nil} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$

3. Verb:

(3) $\begin{bmatrix} \text{PHON} & /\text{uyu}/ \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & [\text{CAT} \quad \text{v}] \\ \text{COMPS} & \begin{bmatrix} \text{FIRST} & \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{k} \\ \text{CASE} & \text{nom} \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{REST} & \text{nil} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$

4. Standard (Verbal) Negation:

$$(4)\ \begin{bmatrix} \text{PHON} & /-\text{mA}/ \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & [\text{CAT} \quad \text{vneg}] \\ \text{COMPS} & \begin{bmatrix} \text{FIRST} & \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{v} \\ \text{COMPS} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{REST} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

5. Tense:

$$(5)\ \begin{bmatrix} \text{PHON} & /\text{TAM 3 }/ \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & [\text{CAT} \quad \text{t3}] \\ \text{COMPS} & \begin{bmatrix} \text{FIRST} & \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{v/vneg} \\ \text{COMPS} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{REST} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$(6)\ \begin{bmatrix} \text{PHON} & /\text{TAM 3.1} + \text{3.2 }/ \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & [\text{CAT} \quad \text{t3.1} + \text{3.2}] \\ \text{COMPS} & \begin{bmatrix} \text{FIRST} & \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{v/vneg} \\ \text{COMPS} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{REST} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$(7)\ \begin{bmatrix} \text{PHON} & /\text{TAM 3.1}/ \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & [\text{CAT} \quad \text{t3.1}] \\ \text{COMPS} & \begin{bmatrix} \text{FIRST} & \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{v/vneg} \\ \text{COMPS} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{REST} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

6. Sentential Negation:

$$(8)\ \begin{bmatrix} \text{PHON} & /\text{değil}/ \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & [\text{CAT} \quad \text{sneg}] \\ \text{COMPS} & \begin{bmatrix} \text{FIRST} & \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{t3.1} \\ \text{COMPS} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{REST} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

7. Double Negation:

$$(9)\ \begin{bmatrix} \text{PHON} & /\text{değil}/ \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & [\text{CAT} \quad \text{doubleneg}] \\ \text{COMPS} & \begin{bmatrix} \text{FIRST} & \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{CAT} & \text{t3.1} + \text{3.2} \\ \text{COMPS} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{REST} & [1] \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

8. Agreement:

$$(10)\begin{bmatrix}\text{PHON} & /\text{sun}/ \\ \text{SYN} & \begin{bmatrix}\text{HEAD} & \begin{bmatrix}\text{CAT} & \text{ag} \\ \text{AGR} & [2]\ 2\text{sg}\end{bmatrix} \\ \text{COMPS} & \begin{bmatrix}\text{FIRST} & \begin{bmatrix}\text{SYN} & \begin{bmatrix}\text{HEAD} & [\text{CAT}\quad \text{t3/sneg/doubleneg}] \\ \text{COMPS} & [1]\begin{bmatrix}\text{FIRST} & \begin{bmatrix}\text{SYN} & \begin{bmatrix}\text{HEAD} & \begin{bmatrix}\text{CASE} & \text{nom} \\ \text{AGR} & [2]\end{bmatrix}\end{bmatrix}\end{bmatrix} \\ \text{REST} & \text{nil}\end{bmatrix}\end{bmatrix}\end{bmatrix} \\ \text{REST} & [1]\end{bmatrix}\end{bmatrix}\end{bmatrix}\end{bmatrix}$$

Let's now present the rule for combining complement taking expressions with their complements:

9. Phrase Structure Rule:

$$\begin{bmatrix}\text{PHON} & [1[+[2] \\ \text{SYN} & \begin{bmatrix}\text{HEAD} & [3]\end{bmatrix} \\ & \begin{bmatrix}\text{COMPS} & [5]\end{bmatrix}\end{bmatrix} \longrightarrow \begin{bmatrix}\text{PHON} & [1]\end{bmatrix}\begin{bmatrix}\text{SYN} & [4]\end{bmatrix}\begin{bmatrix}\text{PHON} & [2] \\ \text{SYN} & \begin{bmatrix}\text{HEAD} & [3] \\ \text{COMPS} & \begin{bmatrix}\text{FIRST} & [\text{SYN} & [4]] \\ \text{REST} & [5]\end{bmatrix}\end{bmatrix}\end{bmatrix}$$

The constraints and the order the grammar would have implemented in its full form:

In all sentence types in this grammar:

(a) The nominative case rule results in a category change; it will take an n ("sen" in (1) in this example) and a k ("nominative" in (2) in our case), and it will form a k ("sen"$_{\text{nom}}$)

Affirmative Sentence:

In the affirmative sentence, the order of the application will be as follows:

(b) The lexical items in (3) and (5) will be unified. (The category of the verb that (5) takes as its complement is v in this case.)
(c) The agreement (8) will be unified with the output of (b) step.
(d) The case-marked noun in step (a) will unify with the output in (c).

Sentence with standard negation:

In sentences with verbal negation, the order of application will be as follows:

(e) The lexical items (3) and (4) will be unified.
(f) The tense in (5) will be unified with the output of (e). (The category of the verb that (5) takes as its complement is vneg in this case.)
(g) The agreement will be combined with the output obtained at the end of (f) step.
(h) Now, we need the subject of the sentence (step (a)) combined with the output in the (g) step.

Sentence with sentential negation:

In sentences with sentential negation, the order of application will be as follows:

(i) The lexical items (3) and (7) will be unified.
(j) 'Değil' in (8) will be unified with the output of (i) step.
(k) The agreement will be attached to the verb phrase- the constituent that has the verb and all its non-subject complements, thus to the output of the step (j).
(l) Now, we can integrate the subject into the structure.

Sentence with double negation:

(m) The lexical items (3) and (4) will be unified.
(n) Then, we add time in (6).
(o) 'Değil' in (9) will be unified with the output obtained at the end of step (n).
(p) Now, we will attach the agreement to the 'conjugated verb+ değil'.
(q) Now, we can integrate the subject into the structure.

References

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