

## Scope as a Diagnostic for the Position of Negation in Persian

Nazila Shafiei-Ilkhechi and Dennis Ryan Storoshenko - University of Calgary

**Issue** The negative marker in Persian is a pre-verbal suffix, which can attach to simplex predicates (1), light verbs in complex predicates (2), and modals appearing between the subject and object (3):

- (1) Ali har mive-i-ro **na**-xord. (2) Har pesar-i ketâb-o pâre **na**-kard.  
Ali every fruit-EZ-ACC NEG-eat.PST.3S Every boy-EZ book-ACC torn NEG-do.PST.3S  
“Ali didn’t eat every fruit.” “Every boy didn’t tear the book.”
- (3) Armita **na**-bâyad har film-i-ro be-bin-e.  
Armita NEG-should every film-EZ-ACC SUBJ-see-3S  
“Armita shouldn’t watch every film.”

Because of this, the overt position of the morpheme may not reflect the syntactic position of the negation head. Based on experiments testing the Persian negation and quantifier scope, we claim:

- i) Persian is a scope-rigid language, with quantifiers interpreted at their surface positions.
- ii) Negation scope with respect to objects and subjects is variable between Persian speakers.
- iii) Negation is below TP, and movement yields scope variations with respect to objects.

**Previous Analyses** Taleghani (2006) and Kwak (2010) claim that Persian negation is above TP, with lower affixation being a post-syntactic process in a late lexical insertion distributed morphology framework. This is partially based on the assumption that negation should c-command negative polarity items (NPIs). A subject NPI as in (4) is taken as proof of high negation:

- (4) Hich-kas be in mehmuni na-raft.  
no-body to this party NEG-go.PST.3SG  
“Nobody went to the party.” (Taleghani 2006, ex 64)

Placing the negation head above TP predicts that negation scopes over subject and object quantifiers in Persian. In Korean and Japanese, head-final languages also licensing subject NPIs, an NPI needs only to be clausemates with negation, and negation is shown to take narrower scope than some NPIs (Han et al., 2007; Nakao and Obata, 2007). As subject NPI evidence is inconclusive across languages, we propose to use the relative scope between negation and quantifiers to diagnose the position of negation.

**Experiment** Using a truth value judgement task (Crain and Thornton, 1998), we designed three experiments. Experiment one uses two quantifiers, *har* “every” and *do* “two” in object positions (1). Experiment two uses the same quantifiers in subject positions (2). These experiments use equal numbers of simplex and complex predicates, and also contain affirmative trials with quantifiers in both the subject and object positions of a single sentence, testing for scope rigidity. Experiment three tests *har* and *do* in subject and object positions of sentences with negated modals (3). Sentences were presented in a context where only one reading (wide or narrow scope of negation relative to the quantifier) is true. All participants are L-1 Persian speakers who completed high school in Iran before moving to North America.

**Discussion** In preliminary results across all experiments, only 1.90% of two-quantifier trials in inverse scope contexts were accepted, while 96.19% were accepted in surface scope contexts, showing Persian is scope-rigid (claim i). We therefore infer the position of negation from its relative scope with quantifiers. Experiment 1 shows 44% acceptance of object position *har* scoping over negation, suggesting negation can be low. Crucially, participants judging sentences such as (1)

in Every>Negation contexts gave consistent responses across multiple trials, with 75% responding always true or always false, and none giving an equal number of true and false responses. This suggests we have detected a difference between, rather than within, speakers (claim ii). Responses for the numeral *do* conditions are more variable, though tending toward a wider scope interpretation of the numeral. However, in our stimuli, the objects with a numeral quantifier do not bear the accusative case marker *-ro*, which has also been tied to definiteness (Toosarvandani, 2009). Interpreted as indefinites, these numerals may take scope by way of a choice function, as in Reinhart (1997). Experiment one results are similar to experiments on Korean (Han et al., 2007) and Japanese (Han et al., 2008), where it was proposed that the difference in universal quantifier scope readings between speakers is a result of string-vacuous head movement of the verb, with negation affixed, in the right periphery (claim iii). These results backstop other arguments based on ellipsis constructions that verbal elements can raise out of their base-generated positions in Persian.

**Further Work** Though data collection in Experiments two and three is still ongoing, the results so far do not accord with what has been seen in Japanese and Korean where subjects uniformly scope over negation. While some participants in Experiment 2 demonstrate this uniformity with subject universal quantifiers scoping over negation, others always judge negation to scope widest over the subject. Experiment 3, also ongoing, shows a greater acceptance of negation scoping over objects than subjects. These results suggest an analysis placing negation below TP where it can be outscoped is still sound, but cannot be the complete story. To account for variability in subject scope with respect to negation, we will compare the final results to analyses of Turkish subject scope with respect to negation, where it has been proposed that such variations derive not from changes in the position of negation, but changes in the position of the subject (Ozturk, 2004). We speculate that the pattern of results observed can be accounted for by different combinations of verb-raising and subject position parameters, maintaining an analysis that negation in Persian is not generated in a position where it scopes over all arguments by default.

## References

- Crain, Stephen, and Rosalind Thornton. 1998. *Investigations in universal grammar: A guide to experiments on the acquisition of syntax and semantics*. Cambridge, MA: MIT Press.
- Han, Chung-hye, Jeffrey Lidz, and Julien Musolino. 2007. Verb-raising and grammar competition in Korean: Evidence from negation and quantifier scope. *Linguistic Inquiry* 38:1–47.
- Han, Chung-hye, Dennis Ryan Storoshenko, and Yasuko Sakurai. 2008. An experimental investigation into the syntax of negation in Japanese. *Language Research* 44:1–31.
- Kwak, Saera. 2010. Negation in Persian. *Iranian Studies* 43:621–636.
- Nakao, Chizuru, and Miki Obata. 2007. Parametric variations in NPI-licensing and the role of LF  $X^0$  movement. In *Proceedings of the 9<sup>th</sup> Seoul International Conference on Generative Grammar*, ed. Doo-Won Lee, 135–152.
- Ozturk, Balkiz. 2004. Case, referentiality and phrase structure. Doctoral Dissertation, Harvard University.
- Reinhart, Tanya. 1997. Quantifier scope: How labour is divided between QR and choice function. *Linguistics and Philosophy* 20:335–397.
- Taleghani, Azita Hojatollah. 2006. The interaction of modality, aspect and negation in Persian. Doctoral Dissertation, University of Arizona.
- Toosarvandani, Maziar. 2009. Ellipsis in Farsi complex predicates. *Syntax* 12:60–92.