

Recycling Arguments in Radical Pro-drop Languages

Synopsis: In this paper, I first provide novel data on radical *pro*-drop from Chinese, Korean, Mongolian, and Turkish (CKMT, hereafter), showing that null arguments in CKMT should be derivable via ellipsis in light of extractability. Then, I show that CKMT null arguments exhibit an overt/covert extraction asymmetry out of them, which I claim is an argument for LF-recycling (cf. Fortin 2007, Chung, Ladusaw, & McCloskey 2006, 2011).

Overt Extraction: It has been standardly assumed that null arguments in CKMT can be derived via either *pro* or ellipsis (cf. Li 2014 for Chinese, Kim 1999 for Korean, Takahashi 2007 for Mongolian, and Şener & Takahashi 2010 for Turkish). E.g., the null object in Turkish (1b) is analyzed as in (1c-i) under the *pro* strategy and is analyzed as in (1c-ii) under the ellipsis analysis.

- (1) a. Ahmet-Ø [DP üç öğrenci]-yi azarla-dı. b. Ayşe-Ø de Δ_{DP} azarla-dı.
 Ahmet-NOM three student-ACC scold-PST Ayşe-NOM also scold-PST
 ‘Ahmet scolded [DP three students].’ (Lit.) ‘Ayşe also scolded Δ_{DP}.’
 c. (i) Ayşe also [DP *pro*] scolded
 (ii) Ayşe also [~~DP three students~~] scolded

However, there is a difference between typical cases of ellipsis and null arguments in CKMT: the former, e.g. VP-ellipsis, allows overt extraction out of its domain as in (2a), while the latter does not as in Turkish (3b), like proforms, e.g. Null Complement Anaphora (NCA) (2b).

- (2) a. Which films₁ did he refuse to [VP see t₁], and which films₂ did he agree to Δ_{VP}?
 b. * Which films₁ did he refuse [to see t₁], and which films₂ did he agree Δ_{NCA}?
 (3) a. Mavi araba-sın₁-i Ahmet-Ø [CP Mete-nin t₁ yıkadığın]-ı dün düşün-dü.
 blue car-AGR-ACC Ahmet-NOM Mete.GEN wash-ACC yesterday think-PST
 (Lit.) ‘The blue car₁, yesterday, Ahmet thought [CP Mete washed t₁].’
 b. * Kırmızı arabas-ın₂-i *pro* Δ_{CP} bugün düşün-dü.
 red car-AGR-ACC he today think-PST
 (Lit.) ‘The red car₂, today, he thought Δ_{CP}.’

In the second conjunct of (2a) and (2b), *which films* has been extracted out of the VP-ellipsis site and the NCA site, respectively, and only the former is acceptable. With (3a) as its antecedent, Turkish (3b), where *kırmızı araba-sın-ı* ‘red car’ has undergone long-distance scrambling out of the null CP, is ungrammatical (note that CPs are independently droppable in Turkish). The impossibility of overt extraction out of CKMT null arguments is not restricted to long-distance scrambling: it also holds for other types of overt movement, e.g. ECM/Raising-to-Object (RtO).

Covert Extraction: Although it has been shown that CKMT null arguments disallow overt extraction out of them, they allow covert extraction, i.e. extraction that does not affect word order, out of them. The contrast in (4a) and (4b) shows that null operator (Op) movement is allowed out of a VP-ellipsis domain, whereas it is not out of a NCA domain. Interesting for us here is that with (5a) as its antecedent, (5b), where Op is extracted out of the null CP, is grammatical, which indicates that Op-movement, unlike overt movement, is allowed out of null arguments in Turkish. (note that comparative deletion in Turkish exhibits subjacency effects, which indicates that movement is involved in the construction).

- (4) a. I always eat anything [Op that he does Δ_{VP}].
 b. * I always eat anything [Op that he volunteers Δ_{NCA}].
 (5) a. Can-Ø [Op₁ Ali-nin [CP Mete-nin t₁ okuduğın]-u sandığın-dan]
 Can-NOM Ali-GEN Mete-GEN read-ACC think-ABL
 daha-çok kitap-Ø oku-yor.
 more book-ACC read-PRES
 ‘Can reads more books [Op₁ than Ali thinks [CP that Mete read t₁]].’
 b. Hasan-Ø da [Op₂ Ahmet-in Δ_{CP} sandığın-dan] daha-çok kitap-Ø oku-yor.
 Hasan-NOM TOP Ahmet-GEN think-ABL more book-ACC read-PRES
 (Lit.) ‘Hasan reads more books [Op₂ than Ahmet thinks Δ_{CP}].’

Another type of covert movement, i.e. movement that does not affect word order, QR, is also allowed out of null arguments, as in Turkish (7).

- (6) a. Some boy [VP admires every teacher], and some girl does Δ_{VP} too.
 b. Some doctor volunteered to visit every patient, and some nurse also volunteered Δ_{NCA}.
 [(6a) = inverse scope OK; (6b) = *inverse scope]

- (7) a. On yıl önce Ali-Ø [CP Ayşe-den en az üç bebeğ-i güzel] ilan et-me-di.
 ten year before Ali-NOM Ayşe-ABL at.least three baby-ACC pretty declare-NEG-PST
 ‘10 years ago, Ali did not declare [CP that, more than Ayşe, at least three babies are pretty].’
 b. Geçen yıl Ahmet-Ø de Δ_{CP} ilan et-me-di.
 last year Ahmet-NOM also declare-NEG-PST
 (Lit.) ‘Last year, Ahmet did not declare Δ_{CP}, either.’ [NEG » AT LEAST 3; AT LEAST 3 » NEG]

It has been standardly assumed that the quantified ECMed subject in (7a), i.e. *en az üç bebeğ-i* ‘at least 3 babies,’ is located within the embedded clause: the embedded adverb *Ayşe-den* ‘than Ayşe’ precedes the subject in question (see Şener 2008 for more arguments for this effect). Interesting for us here is that with (7a) as its antecedent, (7b) allows the quantified ECMed subject in question within the null CP to scope over the matrix negation. Given the standard assumption that strong quantifiers such as *at least X* are not choice-functional (cf. Reinhart 1997), the availability of the inverse scope in (7b) indicates that QR is possible out of a Turkish null CP, supporting the idea that Turkish null arguments is derivable via ellipsis because QR is allowed out of a VP-ellipsis site as in (6a), whereas it is disallowed out of proforms, e.g. a NCA site, as in (6b).

Cross-linguistic Data: The overt/covert extraction asymmetry is widely obtained in the radical *pro*-drop languages where null arguments are claimed to be derivable via ellipsis, as shown below.

(8)	Overt Movement		Silent Movement	
	Scrambling/Topicalization	RtO/Superraising	Op-movement	Scope Shift
Chinese	✗ (by Li 2014)	✗	✓	✓
Korean	✗ (by Saito and An 2010)	✗	✓	✓
Mongolian	✗	✗	✓	N/A
Turkish	✗	✗	✓	✓

Korean and Mongolian disallow long-distance scrambling and RtO out of null arguments, but they allow the relevant instances of covert movement. As for Chinese, we can see that overt extraction is uniformly disallowed out of null arguments with topicalization (cf. Li 2014) and superraising (cf. Ura 1994) and that covert extraction is uniformly allowed out of them with Op-movement and scope-shifting movement involved in A-not-A questions (Huang 1982).

Analysis: I assume with Fortin (2007) and Chung, Ladusaw, and McCloskey (2006, 2011) that LF-copying is a recycling operation of already spelled-out elements. Given that Spell-Out is an operation which deprives syntactic objects of phonological features (cf. Nissebaum 2000), the null argument in (1b) is derived as in (9).

- (9) [TP Ahmet [VP [DP 3 student]_{FF, SF, PF} scold]] ... [TP Ayşe also [VP [DP 3 student]_{FF, SF} scold]]
 •-----> LF-copying/recycling

After Spell-Out applies to the object in the antecedent, its Phonological Feature (PF) is deleted, making LF-copying applicable to it. Given this, the overt/covert extraction asymmetry out of CKMT null arguments falls into place. Specifically, the impossibility of overt extraction out of them, e.g. (3b) and RtO, follows because the relevant null argument site lacks its PF: LF-copied material always lacks its PF so no material within the LF-copy site can be pronounced outside of it. By contrast, Op-movement and QR, neither of which is relevant to PF externalization, cf. (5b) and (7b), should be possible since LF-copied material retain its Formal Feature (FF) and Semantic Feature (SF): FF and SF are the only target for covert movement, so such movement is possible out of LF-copied material, which explains the grammaticality of (5b) and the availability of the inverse scope reading in (7b). Therefore, the overt/covert extraction asymmetry out of CKMT null arguments follows once they are derived via LF-recycling, which in turn supports the availability of the strategy in question in natural languages.

Consequences: First, that covert extraction is allowed out of CKMT null arguments provides evidence that they cannot be uniformly *pro* since extraction is uniformly banned out of proforms such as NCA, which is by assumption atomic without any internal structure. Second, natural languages employ both PF-deletion and LF-copying, depending on the overt and/or covert extractability: VP-ellipsis should be implemented via PF-deletion since overt extraction is possible out of its domain, whereas ellipsis of CKMT null arguments via LF-copying since only covert extraction is allowed out of them, adding a novel type of ellipsis to the ellipsis typology.

Selected References: Chung, S., W. Ladusaw, and J. McCloskey. 2006. Sluicing revisited. Paper presented at the LSA 2006 meeting. Fortin, C. 2007. Indonesian sluicing and verb phrase ellipsis. Ph.D. diss., U. of Michigan.