

## Licensing and Interpretation: A Comprehensive Theory of Sluicing

Margaret Kroll & Deniz Rudin — UC Santa Cruz

{makroll, drudin}@ucsc.edu

This paper argues for a reconceptualization of the licensing and interpretation of the ellipsis type known as sluicing. This reconceptualization is based on recent empirical discoveries concerning the range of possible mismatches between ellipsis sites and antecedents in sluicing constructions. The new observations, which center on mismatches in modality and polarity, present profound challenges for even the most successful theories of the relation between antecedent and ellipsis site, as they show that much more dramatic differences between the two are possible than are allowed under current theories. We develop an alternative framework, incorporating both a licensing and an interpretive component, that permits such mismatches while ruling out others which do not in fact seem to be possible. We begin by providing corpus evidence for the new kinds of mismatches. We then develop our alternative.

Sluicing is a form of ellipsis in which the TP of an interrogative is elided, stranding an overt *wh*-phrase. The ability of the ellipsis site (E) of a sluicing construction to mismatch in tense with its antecedent (A), as well as the possibility of sluicing with gerund and imperative antecedents, has been well observed (Merchant 2001, Chung 2006/2013, a.o.); however, mismatches in voice or argument structure between E and A sites are impossible (Merchant 2005). Licensing theories defining the identity relationship holding between A and E can be broadly categorized into two camps: semantic entailment identity (Merchant 2001, van Craenenbroeck 2010, AnderBois 2014, a.o.), and syntactic form identity (Sag 1976, Chung et al. 1995, Kehler 2002, a.o.). Chung (2006/2013) and Barker (2013) stake out a middle ground by arguing that both semantic and syntactic identity are needed.

**Novel Mismatches** We identify two previously unobserved but robust patterns of mismatches that challenge both types of licensing theories: polarity and modality mismatches. Polarity mismatches are those in which A and E contain opposite polarity. For example, the relationship between A and E in the corpus example in (1) is a pragmatic entailment that  $\neg \textit{remember } p \rightarrow \neg p$ . No semantic entailment relationship or strict syntactic identity relationship exists between A and E. Similarly, there is no strict semantic or syntactic identity between A and E in (2).

- (1) *Context: On the day the Japanese invaded Pearl Harbor, Hummel was rounded up and locked in an internment camp along with about 2,000 other foreigners. . .*  
Sluice: “I don’t know why ~~<I wasn’t scared>~~<sub>E</sub>, but [I really cannot remember being scared]<sub>A</sub>,” Hummel said. “It all seemed like great fun.”
- (2) *Context: Students were given the option to do an extra credit problem, but were required to mark which problem they did on a spreadsheet. There is no mark next to John’s name. The TA says:*  
Sluice: Either [John<sub>j</sub> didn’t do an extra credit problem]<sub>A</sub>, or he<sub>j</sub> didn’t mark which one<sub>i</sub> ~~<he<sub>j</sub> did t<sub>i</sub>>~~<sub>E</sub>.

Mismatches in modality are also possible between A and E, another case in which sluicing is grammatical despite the failure of strict semantic or syntactic identity. In (3), the modal *had to* in A mismatches the modal *could* in E. Polarity and modal mismatches are also found within the same construction, as in (4).

- (3) This was a problem<sub>i</sub> that [string theory had to solve t<sub>i</sub>]<sub>A</sub>, but for a long time it was not clear how ~~<string theory could solve it<sub>i</sub>>~~<sub>E</sub>.
- (4) I’m going to put my thumb<sub>i</sub> on the scale and [not take it<sub>i</sub> off]<sub>A</sub> until somebody can give me a good reason why ~~<I should take it<sub>i</sub> off>~~<sub>E</sub>.

We show that a syntactic licensing condition wedded to a pragmatic interpretation condition accounts for the mismatches discussed here as well as other recalcitrant data observed in the literature. Our syntactic licensing condition enforces syntactic identity only over the verbal domain ( $vP$ ), which pairs our novel observations above with prior observations on the impossibility of mismatches in this domain; our pragmatic interpretation condition then restricts the set of allowable mismatches.

**Syntactic Licensing Condition** Our syntactic identity condition enforces identity head-by-head instead of over the entire deleted constituent, allowing us to restrict the requirement of syntactic identity to heads originating in the verbal domain. An abbreviated version of this condition follows:

SYNTACTIC LICENSING CONDITION: A TP  $\alpha$  can be deleted when related to an antecedent  $\beta$  iff for all heads  $h$  in  $\alpha$  that were externally merged within the  $vP$  of  $\alpha$ ,  $h$  has a structure-matching correlate  $i$  in  $\beta$ .

Where  $i$  can serve as a correlate for  $h$  iff  $i$  is a token of the same lexical item as  $h$  or  $i$  and  $h$  bear the same index; and where a node  $n$  structure-matches a node  $m$  iff  $n$  and  $m$  are dominated by an identical sequence of nodes (i.e. they are in the same structural position in their respective trees).

This condition allows mismatches in polarity and modality between A and E, provided that content originating in the  $vP$  of E matches content originating in the  $vP$  of A. This explains the grammaticality of (1)-(3); however, it overpredicts the availability of mismatches above the verbal domain. It is not the case that A and E can always mismatch in polarity or modality: the mismatch must be pragmatically licensed.

(1') I don't know why ~~<#I wasn't scared>~~<sub>E</sub>, but [I really cannot **forget** being scared]<sub>A</sub>.

**Pragmatic Interpretation Condition** Our pragmatic interpretation condition optimally constrains the availability of mismatches by requiring unidirectional contextual entailment between A and E. Informally, a TP can be elided iff it expresses a proposition that is entailed by the local context ( $c_L$ ) and is uniquely salient. Formally:

INTERPRETATION CONDITION: A TP  $\alpha$  can be deleted iff  $\text{ExClo}([\alpha]^S)$  expresses a proposition  $p$ , such that  $c_L \subseteq p$  and  $p$  is uniquely salient.

This condition correctly predicts the availability of the sluices above: contextual entailment of E by A in (1) follows from the implicative nature of *remember* (Karttunen 1971); it follows in (2) from the presupposition projection in local contexts created by exclusive disjunction (Karttunen 1974); and in (4) from the event semantics and pragmatics of *until* (de Swart 1996). Finally, the condition rules out (1') because the factivity of *forget* precludes an entailment relationship between A and E.

**Conclusion** On the basis of novel data, in concert with prior observations in the literature, this paper presents a comprehensive account of both the licensing and the interpretation of sluicing. We argue in favor of a purely syntactic theory of the identity relationship holding between E and A, allowing mismatches only above the verbal domain, supplemented by a pragmatic theory of the availability of interpretations in context.

**Selected References:** AnderBois, S. 2014. The Semantics of Sluicing. *Language* 90. Chung, S. et al. 1995. Sluicing and Logical Form. *Natural Language Semantics* 3. Karttunen, L. 1971. Implicative Verbs. *Language* 47. Karttunen, L. 1974. Presuppositions and Linguistic Context. *Theoretical Linguistics* 1. de Swart, H. 1996. Meaning and Use of *not . . . until*. *Journal of Semantics* 13.