Overview: One of the primary achievements of *dynamic semantics* is a theory of anaphoric dependencies, where the *left-to-right* nature of anaphora resolution is built into semantic composition. In this paper, we focus on (apparent) *cataphoric* dependencies – instances of binding where the bound expression *precedes* the binder. Cataphora has largely been ignored in the literature; not coincidentally, there is a tension between the availability of cataphoric binding and the core properties of dynamic semantics. The narrative is as follows: (i) we set-up the problem space by surveying the dynamic theory of anaphora, (ii) we introduce data motivating our primary empirical claim: definite but not indefinite antecedents license cataphora, (iii) in the final section of the paper, we present our analysis, which is based on the idea that cataphoric binding as binding by a *presupposition*. Our aim is to derive the following putative generalization:

(1) Presupposition projection, but not scope, may feed binding.

Dynamic Primer: One major achievement of dynamic semantics is that it provides a theory of *donkey anaphora*. We adopt a version of Dynamic Predicate Logic (DPL; Groenendijk & Stokhof 1991) as our metalanguage. In our version, information states are *partial* assignments. In (3), we give translations for the two sentences in the discourse (2a):

(2) a. A man^x walked in. He$_x$ sat down. b. # He$_a$ sat down. A man^a walked in.

(3) $f \llbracket \exists x[\mathsf{man}\ x \wedge \mathsf{walkedIn}\ x] \rrbracket\ g \Leftrightarrow f \approx_x g$ and $g(x) \in I(\mathsf{man})$ and $g(x) \in I(\mathsf{walkedIn})$
$g \llbracket \mathsf{satDown}\ x \rrbracket\ h \Leftrightarrow g = h$ and $g(x) \in I(\mathsf{satDown})$

In order to account for anaphora, and its left-to-right nature, dynamic semantics makes composition sensitive to linear order. For example, $\wedge$, to which discourse sequencing is translated into, is order-sensitive in that $\phi \wedge \psi$ and $\psi \wedge \phi$ are not always equivalent. Indefinites may bind definites to their right, while binding to the left is not possible.

Cataphoric Binding: Dynamic semantics is tailored to ensure that *dynamic binding* proceeds from left-to-right. At face value, this looks like an over-simplification. While indefinites do not typically license *cataphoric* dependencies, definites seem to – *it* and *the new book by Chomsky* can pick out the same entity in (4).

(4) Every professor who wants to read it$_a$ bought $\left\{ \#\ \text{a}^a \mid \text{the}^a \right\}$ new book by Chomsky.

For the dynamic semanticist, the obvious move is to blame this on *accidental coreference* rather than genuine binding. We provide a novel argument based on the strict-sloppy ambiguity (Sag 1976, Williams 1977) that this cannot (always) be the case. *Every* theory of the sloppy readings requires *binding* between a pronoun and its antecedent (see Tomioka 1999, Charlow 2012 for related discussion). Crucially, dynamic binding licenses sloppy readings too:

(5) Every farmer who owns a donkey^x, beats it$_x$,
and every farmer who owns a mule^y does beat it$_y$ too.

Example (6), involving VP ellipsis, shows that the *Chomsky's book* can *bind* the pronominal to its left, since the elliptical sentence has a sloppy reading.

(6) Every linguistics professor who wanted to read it$_a$ bought Chomsky's book^a,
and every Philosophy professor who did want to read it$_b$ bought Yablo's book^b.

In the talk, we also give an empirical argument against a crossover derivation based on interactions between scope and binding.

Binding by Presuppositions: We would like to be able to account for the ability of definite antecedents to bind to their left, without dispensing with the achievements of dynamic semantics in the domain of *anaphora*. Our claim is that, unlike orthodox dynamic binding of a definite by an indefinite, as captured by dynamic semantics, *cataphora* involves binding by a *presupposition*.

We depart from the standard dynamic treatment of definites as denoting variables, and instead adopt something closer to a Fregean analysis in the sense that the presupposition is an existential statement. One crucial difference, however, is that our presupposition is a *dynamic* statement triggering random assignment. From now on, sentences are translated into a pair of DPL statements. We adopt the Sauerland notation, $\frac{\phi}{\psi}$, where ϕ represents the presupposition and ψ the at-issue meaning. $\frac{\phi}{\psi}$ represents a partial function over information states whose domain is $\{ i \mid i[\phi]j \text{ for some } j \}$.

(7) The^a_x new book is sold out $\rightsquigarrow \frac{\mathsf{dom}\, x \wedge \exists! a[\mathsf{newBook}\, a] \wedge x = a}{\mathsf{soldOut}\, x}$

We define an accommodation operator $\mathbb{A}$ that takes a partial DPL statement $\frac{\phi}{\psi}$ and returns a total one in the following manner. $\top$ here is a trivial identity test, i.e. $i[\top]j :\Leftrightarrow i = j$.

(8) $\mathbb{A}\left(\frac{\phi}{\psi}\right) \coloneqq \frac{\top}{\phi \wedge \psi}$

In what follows, we simply write $\phi \wedge \psi$ for this.

Let's see how this accounts for a basic case of cross-sentential cataphora. In order to account for cataphora licensed by proper names and pronominals, we assume that they also have existential presuppositions.

(9) He_a sat down. Then the new arrival^a_x yawned.

(10) a. he^b_a sat down $\rightsquigarrow \frac{\mathsf{dom}\, a \wedge \exists b[a = b]}{\mathsf{satDown}\, a}$

b. the new arrival^a_x yawned $\rightsquigarrow \frac{\mathsf{dom}\, x \wedge \exists! a[\mathsf{newArrival}\, a] \wedge x = a}{\mathsf{yawned}\, x}$

c. $\mathbb{A}\left(\frac{\mathsf{dom}\, a \wedge \exists b[a = b] \wedge \mathsf{dom}\, x \wedge \exists! a[\mathsf{newArrival}\, a] \wedge x = a}{\mathsf{satDown}\, a \wedge \mathsf{yawned}\, x}\right)$
$= \mathsf{dom}\, a \wedge \exists b[a = b] \wedge \mathsf{dom}\, x \wedge \exists! a[\mathsf{newArrival}\, a] \wedge x = a$
$\wedge\, \mathsf{satDown}\, a \wedge \mathsf{yawned}\, x$

This strategy for licensing cataphora is of course not available for indefinites, since indefinites aren't *presuppositional* in the relevant sense.

References: ❖ Charlow, Simon. 2012. Cross-categorial donkeys. In, ed. by Maria Aloni et al., *Logic, language and meaning* (Lecture Notes in Computer Science), 261–270. Springer Berlin Heidelberg. ❖ Groenendijk, Jeroen & Martin Stokhof. 1991. Dynamic predicate logic. *Linguistics and Philosophy* 14(1). 39–100. ❖ Sag, Ivan. 1976. *Deletion and logical form*. Massachussetts Institute of Technology dissertation. ❖ Tomioka, Satoshi. 1999. A sloppy identity puzzle. *Natural Language Semantics* 7(2). 217–241. ❖ Williams, Edwin S. 1977. Discourse and logical form. *Linguistic Inquiry* 8(1). 101–139.