Overview: there are two broad traditions addressing the semantics and pragmatics of disjunction, with little overlap. The *scalar implicature* literature (Sauerland 2004, a.o.) and the literature on *dynamic semantics* (Heim 1983). Both seem necessary, given the data, but it is not obvious that the two are even compatible – concretely, the scalar implicature literature takes as its starting point that the basic meaning of natural language *or* is inclusive logical disjunction, whereas dynamic semantics departs from this orthodoxy. Relatedly, dynamic semantics has been repeatedly criticized (see, e.g., Schlenker 2009) because the dynamic entry for disjunction can't be derived from logical disjunction (the same criticism applies to the other logical connectives). In this talk, one of our main goals will be to boost the explanatory power of dynamic semantics (wrt. presupposition projection). We'll aim to accomplish this by presenting a novel take on dynamic semantics which makes use of the *state monad* (see, e.g., Charlow 2014). In this new fragment, dynamic connectives are not stated as primitives, but rather are derived by type-lifting propositional connectives in a systematic way. we will ultimately aim to reconcile the pragmatic and dynamic approaches to disjunction by integrating *exhaustification* into this framework.

Presupposition projection in disjunctive sentences: Karttunen (1973) observed that in a sentence such as (1), the presupposition in the second disjunct triggered by *stopped vaping* (*that Paul did vape*) is not inherited by the complex disjunctive sentence. In order to capture such data, Karttunen proposed the generalization in (2) – if the *negation* of the first disjunct entails the presupposition of the second disjunct, then it fails to project.

(1) Paul never vaped or Paul stopped vaping.

(2) *Karttunen's generalization*
Let S be a sentence of the form "A or B".

a. If $[\![A]\!]$ presupposes π then $[\![S]\!]$ presupposes π.

b. If $[\![B]\!]$ presupposes π then $[\![S]\!]$ presupposes π, unless $\neg\, [\![A]\!]$ entails π.

The problem: Karttunen's generalization is too weak. In each case below, the negation of the first disjunct is too weak to entail the presupposition of the second. In order to account for this and similar data, we suggest the refinement to Karttunen's generalization in (6). We assume that in a complex sentence such as "A or B", A is an alternative to B, and every sub-constituent of A is an alternative to B. This falls out straightfowardly from, e.g., Fox & Katzir's (2011) structural theory of alternatives. In the next section, we'll sketch a state-monadic update semantics that derives the presupposition projection properties of disjunction (so-called "dynamic disjunction"), from local exhaustification, while improving on the explanatory power of classical dynamic semantics.

(3) Either Paul never vaped and he jogged every day, or he stopped vaping. *no presupposition*

(4) Either there is no King of France and the country is in chaos or the King Of France is in exile. *no presupposition*

(5) Either nobody left early or only Josie left early. *no presupposition*

(6) Let S be a sentence of the form "A or B".

a. If $[\![A]\!]$ presupposes π then $[\![S]\!]$ presupposes π.

b. If $[\![B]\!]$ presupposes π then $[\![S]\!]$ presupposes π, unless $\bigwedge_{\psi \in \text{excl } B} [\neg\psi]$ entails π.

A state-monadic update semantics: Here, we'll be following existing work by, e.g., Shan (2002), Asudeh & Giorgolo (2016), and especially Charlow (2014), by using *monads* to extend a pure, Montagovian fragment. The Update type constructor is defined in (7a), alongside corresponding return and bind functions in (7b) and (7c). U, together with these two functions, constitutes an instantiation of the State monad.

(7) a. $\mathsf{U}\ \mathsf{a} \coloneqq \{\,\mathsf{s}\,\} \to (\mathsf{a} * \{\,\mathsf{s}\,\})$

b. $a^{\rho} \coloneqq \lambda c\,.\,\langle a, c\rangle$

c. $m \ggg k \coloneqq \lambda c\,.\,\langle y, c''\rangle \quad \text{where } \langle x, c'\rangle \coloneqq m\,c; \langle y, c''\rangle \coloneqq k\,x\,c'$

We take presuppositional one-place predicates to be of type $\mathsf{e} \to \mathsf{U}\,(\mathsf{S}\,\mathsf{t})$, i.e., functions from individuals to (partial) propositional updates. We define a dynamic lifter function d-lift to lift a logical connective into its update-semantic counterpart.

(8) $\mathsf{stopSmoking} = \lambda x\,.\,\lambda c : c \subseteq \{\,w \mid \mathsf{smoked}_w\ x\,\}\,.\,\langle \lambda w\,.\,\neg\,\mathsf{smoked}_w\ x, c\rangle$ $\qquad \mathsf{e} \to \mathsf{U}\,(\mathsf{S}\,\mathsf{t})$

(9) $\mathsf{d\text{-}lift}_1\ f m \coloneqq \lambda c\,.\,\langle f\ p\ \{\,w \mid w \in D_s\,\}, f\ c'c\rangle$ $\qquad$ for $\langle p, c'\rangle \coloneqq m\,c$

In informal terms, the propositional connective f is applied to the ordinary value, in which case its inner-argument is simply the set of all possible worlds, and it is also applied to the updated common ground, in which case its inner-argument is the input context c. Applying d-lift to each of the propositional connectives – except disjunction – gives us...the Heimian dynamic connectives! Our d-lift rule, however, predicts that the local context of the second disjunct should just be the first disjunct. We rescue this deviant prediction via a dynamic formulation of exh applying to the second disjunct. Details are necessarily omitted, but a complete LF is given below.

(10) Paul never vaped or Paul stopped vaping.

(11) $\lambda c\,.\left\langle \begin{array}{l}\lambda w\,.\,\neg\,\mathsf{vaped}_w\ \mathsf{p} \vee \neg\,\mathsf{vapes}_w\ \mathsf{p},\\ (c \cap \{\,w \mid \neg\,\mathsf{vaped}_w\ \mathsf{p}\,\}) \cup ((c \cap \{\,w \mid \mathsf{vaped}_w\ \mathsf{p}\,\}) \cap \{\,w \mid \neg\,\mathsf{vapes}_w\ \mathsf{p}\,\})\end{array}\right\rangle$

- $\lambda c\,.\left\langle \begin{array}{l}\lambda w\,.\neg\,\mathsf{vaped}_w\ \mathsf{p},\\ c \cap \{\,w \mid \neg\,\mathsf{vaped}_w\ \mathsf{p}\,\}\end{array}\right\rangle$
  - $\mathbb{A}$ (Paul never vaped)$^{\rho}$
- ...
  - or
  - $\lambda c\,.\begin{cases}\left\langle \begin{array}{l}\lambda w\,.\,\neg\,\mathsf{vapes}_w\ \mathsf{p},\\ (c \cap \{\,w \mid \mathsf{vaped}_w\ \mathsf{p}\,\}) \cap \{\,w \mid \neg\,\mathsf{vapes}_w\ \mathsf{p}\,\}\end{array}\right\rangle & \top\\ \sharp & \text{otherwise}\end{cases}$
    - exh
Paul never vaped
∈ alt (Paul stopped vaping)
    - $\lambda c\,.\begin{cases}\left\langle \begin{array}{l}\lambda w\,.\,\neg\,\mathsf{vapes}_w\ \mathsf{p},\\ c \cap \{\,w \mid \neg\,\mathsf{vapes}_w\ \mathsf{p}\,\}\end{array}\right\rangle & c \subseteq \{\,w \mid \mathsf{vaped}_w\ \mathsf{p}\,\}\\ \sharp & \text{otherwise}\end{cases}$
      - $\mathbb{A}$ (Paul stopped vaping)$^{\rho}$

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