A dynamic alternative-pruning account of asymmetries in Hurford Disjunctions

Adèle Hénot-Mortier (MIT)

August 10, 2022

33rd European Summer School in Logic, Language and Information

An asymmetry in Hurford's Constraint

- (1) a. # John lives in Paris or France. Paris \Rightarrow France
 - b. John ate some or all of the cookies. All \Rightarrow Some
 - c. ?? John ate all or some of the cookies. All \Rightarrow Some

The puzzle

- All the disjunctions in (1) have a disjunct that entails the other...
- This is usually infelicitous: Hurford's Constraint [Hurford, 1974].

An asymmetry in Hurford's Constraint

- (1) a. # John lives in Paris or France. Paris \Rightarrow France
 - b. John ate some or all of the cookies. All \Rightarrow Some
 - c. ?? John ate all or some of the cookies. All \Rightarrow Some

The puzzle

- All the disjunctions in (1) have a disjunct that entails the other...
- This is usually infelicitous: Hurford's Constraint [Hurford, 1974].
- Yet, (1b) is fine, while (1a) and (1c) are not! What is going on?
 - (1b), unlike (1a), makes use of scalar items [Gazdar, 1979].
 - (1b), unlike (1c), starts with the weak scalar item [Singh, 2008].

An asymmetry in Hurford's Constraint

- (1) a. # John lives in Paris or France. Paris \Rightarrow France
 - b. John ate some or all of the cookies. All \Rightarrow Some
 - c. ?? John ate all or some of the cookies. All \Rightarrow Some

The puzzle

- All the disjunctions in (1) have a disjunct that entails the other...
- This is usually infelicitous: Hurford's Constraint [Hurford, 1974].
- Yet, (1b) is fine, while (1a) and (1c) are not! What is going on?
 - (1b), unlike (1a), makes use of scalar items [Gazdar, 1979].
 - (1b), unlike (1c), starts with the weak scalar item [Singh, 2008].
- Our goal: explain how the linear ordering of scalar items in a disjunctive statement influences felicity.

Scalar implicatures prevent violations of Hurford's constraint

• Scalar items like (some, all) or (or, and), are ordered on a scale where precedence is logical entailment [Horn, 1972].

- Scalar items like (some, all) or (or, and), are ordered on a scale where precedence is logical entailment [Horn, 1972].
- A scalar implicature enriches the meaning of a weaker scalar item with the negation of a stronger scalemate.

- Scalar items like (some, all) or (or, and), are ordered on a scale where precedence is logical entailment [Horn, 1972].
- A scalar implicature enriches the meaning of a weaker scalar item with the negation of a stronger scalemate.
- We assume scalar implicatures are computed via a syntactic operator called EXH, which negates a contextually-provided set of stronger alternatives A [Rooth, 1992, Fox, 2007].

- Scalar items like (some, all) or (or, and), are ordered on a scale where precedence is logical entailment [Horn, 1972].
- A scalar implicature enriches the meaning of a weaker scalar item with the negation of a stronger scalemate.
- We assume scalar implicatures are computed via a syntactic operator called EXH, which negates a contextually-provided set of stronger alternatives A [Rooth, 1992, Fox, 2007].
 - For instance, **some** is often enriched as (**some but not all**).
 - Crucially, all and (some but not all) are non-entailing!

- Scalar items like (some, all) or (or, and), are ordered on a scale where precedence is logical entailment [Horn, 1972].
- A scalar implicature enriches the meaning of a weaker scalar item with the negation of a stronger scalemate.
- We assume scalar implicatures are computed via a syntactic operator called EXH, which negates a contextually-provided set of stronger alternatives A [Rooth, 1992, Fox, 2007].
 - For instance, **some** is often enriched as (**some but not all**).
 - Crucially, all and (some but not all) are non-entailing!
- So, a scalar implicature computed on some may prevent a disjunction of the form (some or all) ✓ as in (1b) to violate Hurford's Constraint.

- Scalar items like (some, all) or (or, and), are ordered on a scale where precedence is logical entailment [Horn, 1972].
- A scalar implicature enriches the meaning of a weaker scalar item with the negation of a stronger scalemate.
- We assume scalar implicatures are computed via a syntactic operator called EXH, which negates a contextually-provided set of stronger alternatives A [Rooth, 1992, Fox, 2007].
 - For instance, **some** is often enriched as (**some but not all**).
 - Crucially, all and (some but not all) are non-entailing!
- So, a scalar implicature computed on some may prevent a disjunction of the form (some or all) ✓ as in (1b) to violate Hurford's Constraint.
- To capture the contrast with (all or some)_# however, EXH must be made asymmetric...

Accounting for the asymmetry

Two main accounts

- [Fox and Spector, 2018]: Economy constraint controlling ExH-insertion, by checking that it does not lead to a weaker meaning overall... complex and maybe too global, see (2).
- (2) $\#_{\odot}$ John ate all or none of the cookies, or else he ate most.

Accounting for the asymmetry

Two main accounts

- [Fox and Spector, 2018]: Economy constraint controlling Exh-insertion, by checking that it does not lead to a weaker meaning overall... complex and maybe too global, see (2).
- (2) $\#_{\odot}$ John ate all or none of the cookies, or else he ate most.
- [Tomioka, 2021]: constraint on the shape of the set of alternatives \mathcal{A} generated by the *Contrast Antecedent* of a given scalar item... unusual take on Exh/ \mathcal{A} interactions, and possibly too general as well, see (3).
- (3) $\#_{\odot}$ John did **all** of the homework or Mary did **some** of it

Accounting for the asymmetry

Two main accounts

- [Fox and Spector, 2018]: Economy constraint controlling Exh-insertion, by checking that it does not lead to a weaker meaning overall... complex and maybe too global, see (2).
- (2) $\#_{\odot}$ John ate all or none of the cookies, or else he ate most.
- [Tomioka, 2021]: constraint on the shape of the set of alternatives \mathcal{A} generated by the *Contrast Antecedent* of a given scalar item... unusual take on Exh/ \mathcal{A} interactions, and possibly too general as well, see (3).
- (3) $\#_{\odot}$ John did all of the homework or Mary did some of it
- Those two accounts posit new general constraints that require to reconsider the whole disjunction to apply repairs...

Our take on the problem

A familiar machinery

• We assume that the asymmetry resides in the set of alternatives ${\cal A}$ passed to ${\rm Exh}.$

Our take on the problem

A familiar machinery

- We assume that the asymmetry resides in the set of alternatives ${\cal A}$ passed to ${\rm Exh}.$
- More specifically, we claim that in a disjunctive context, A undergoes dynamic alternative pruning, i.e. is impoverished depending on what has been previously entertained:
 - if $\mathrm{Exh}_\mathcal{A}$ appplies to the first disjunct, no pruning occurs...
 - ...but if ExH_A applies to the second disjunct, the content of the first disjunct is removed from A.

Our take on the problem

A familiar machinery

- We assume that the asymmetry resides in the set of alternatives \mathcal{A} passed to ExH.
- More specifically, we claim that in a disjunctive context, A undergoes dynamic alternative pruning, i.e. is impoverished depending on what has been previously entertained:
 - if $Exh_{\mathcal{A}}$ appplies to the first disjunct, no pruning occurs...
 - ...but if ExH_A applies to the second disjunct, the content of the first disjunct is removed from A.
- *A* is thus "smaller" whenever EXH applies in the second disjunct, making EXH less powerful (fewer alternatives to negate!).
- In turn, EXH will be less susceptible to prevent a violation of Hurford's Constraint.

A very simple illustration

(Some or all) ✓ case					
$\forall \lor E$	(Basic utterance)				
$\mathrm{Exh}_{\{\forall\}}(\exists) \lor \forall$	(EXH in D_1)				
$\mathrm{Exh}_{\{\forall\}}(\exists) \lor \forall$	(No pruning)				
$(\forall \neg \land) \lor \forall$	(Exhaustification)				
Hurford 🗸					

A very simple illustration

(Some or all)√	v case	(All or some) _#	case
$\forall \lor E$	(Basic utterance)	${f A} \lor {f A}$	(Basic utterance)
$\mathrm{Exh}_{\{\forall\}}(\exists) \lor \forall$	(EXH in D_1)	$\forall \lor \operatorname{Exh}_{\{\forall\}}(\exists)$	(EXH in D_2)
$\mathrm{Exh}_{\{\forall\}}(\exists) \lor \forall$	(No pruning)	$\forall \lor \operatorname{Exh}_{\{\forall\} \setminus \{\forall\}}(\exists$) (D ₁ -pruning)
$(\exists \land \neg \forall) \lor \forall$	(Exhaustification)	∀∨ExH _∅ (∃)	(D ₁ -pruning)
Hurf	FORD 🗸	$\mathbf{A} \wedge \mathbf{A}$	(Exhaustification)

Hurford 🗡

A very simple illustration

(Some or all)	∕ case	(All or some) _#	case
$\forall \lor E$	(Basic utterance)	$\textbf{F} \land \textbf{A}$	(Basic utterance)
$\mathrm{Exh}_{\{\forall\}}(\exists) \lor \forall$	(EXH in D_1)	$\forall \lor \operatorname{Exh}_{\{\forall\}}(\exists)$	(EXH in D_2)
$\mathrm{Exh}_{\{\forall\}}(\exists) \lor \forall$	(No pruning)	$\forall \lor \operatorname{Exh}_{\{\forall\} \setminus \{\forall\}}$) (D ₁ -pruning)
$(\exists \land \neg \forall) \lor \forall$	(Exhaustification)	$\forall \lor \operatorname{Exh}_{\emptyset}(\exists)$	(D ₁ -pruning)
Hur	FORD 🗸	∀∨∃ (Exhaustification)	
		Hurford X	

Want to learn about more complex cases of scalar Hurford Disjunctions? Come see my poster!

Selected references i



Fox, D. (2007).

Free choice and the theory of scalar implicatures.

In Presupposition and implicature in compositional semantics. Springer.



Fox, D. and Spector, B. (2018).

Economy and embedded exhaustification.

Natural Language Semantics.



Gazdar, G. (1979).

Implicature, Presupposition and Logical Form.

Academic Press.



Horn, L. R. (1972).

On the Semantic Properties of Logical Operators in English.

PhD thesis, UCLA.

Selected references ii



Hurford, J. R. (1974).

Exclusive or inclusive disjunction.

Foundations of Language.



Rooth, M. (1992).

A theory of focus interpretation.

Natural Language Semantics, 1(1):75–116.



Singh, R. (2008).

On the interpretation of disjunction: Asymmetric, incremental, and eager for inconsistency.

Linguistics and Philosophy, 31:245-260.



Tomioka, S. (2021).

Scalar implicature, hurford's constraint, contrastiveness and how they all come together.

Frontiers in Communication, 5.