

Negotiating lexical uncertainty and expertise with disjunction

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COMMUNICATING IN LANGUAGE ABOUT LANGUAGE

- Languages are neither fixed across time nor identically reproduced in all speakers, but rather continually renegotiated during interactions [7].
- People accommodate to each other's usage patterns [16], form temporarily lexical pacts [8, 3], and instruct each other about their linguistic views [18, 39].
- Some of this communication in language about language is direct, as with explicit definitions, but much of it arrives via secondary pragmatic inferences.
- Disjunction supports what appear to be opposing inferences about language:
 - Hurfordian pressure [21]:** $X \text{ or } Y$ conveys that X and Y are disjoint
 - Definitional inference [20]:** $X \text{ or } Y$ conveys that X and Y are synonymous
- This pattern is cross-linguistically robust, so we seek a single pragmatic model that can derive both of these meanings from the semantics of disjunction given different contextual assumptions.

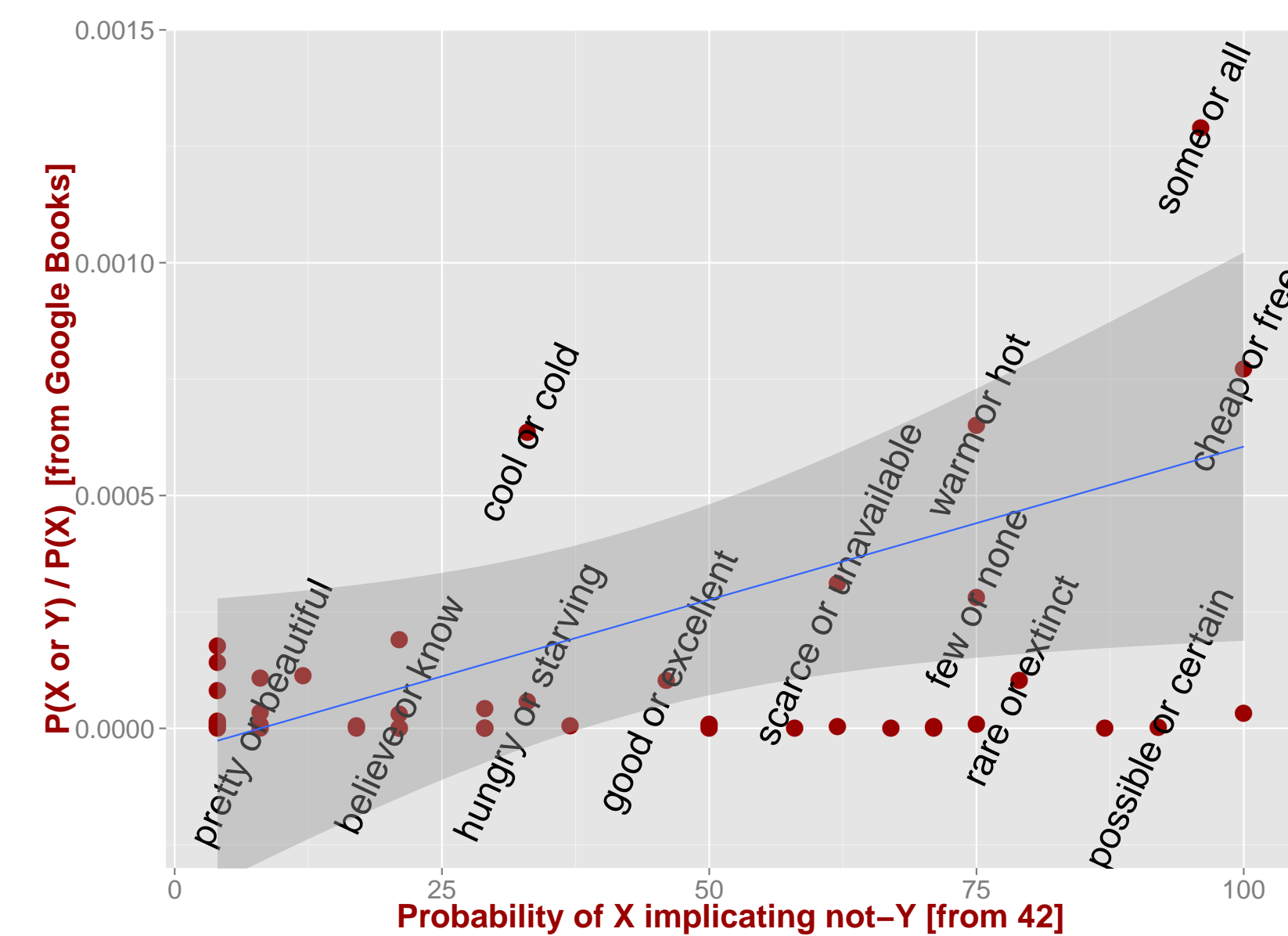
HURFORDIAN PERCEPTIONS AND INTENTIONS

Generalization: $X \text{ or } Y$ usually conveys that the speaker is using a lexicon in which $\llbracket X \rrbracket$ and $\llbracket Y \rrbracket$ are disjoint, or it addresses a speaker concern that the listener is using such a lexicon.

- the nuptials will take place in either **France or Paris**
- the **canoe or boat** will be held by the stream's current
- In 1940, 37% of us had gone to a **church or synagogue** in the last week.

No clear evidence for ordering restrictions or preferences deriving from the entailment relation:

Our corpus		
Disjunct order	Exs.	
[general] or [specific]	79	
[specific] or [general]	90	



The frequency of $X \text{ or } Y$ correlates with the prevalence of X implicating *not* Y [5].

DISJUNCTIVE DEFINITION AND IDENTIFICATION

Generalization: $X \text{ or } Y$ can convey $\llbracket X \rrbracket \approx \llbracket Y \rrbracket$ when the speaker is mutually, publicly known to be an expert or would like to establish expertise.

- She's a **wine lover or oenophile**.
- Title: **A Geological History of Manhattan or New York Island**
- Welcome to **New Haven or "the Elm City"**.
- It's a **woodchuck, or land beaver**.

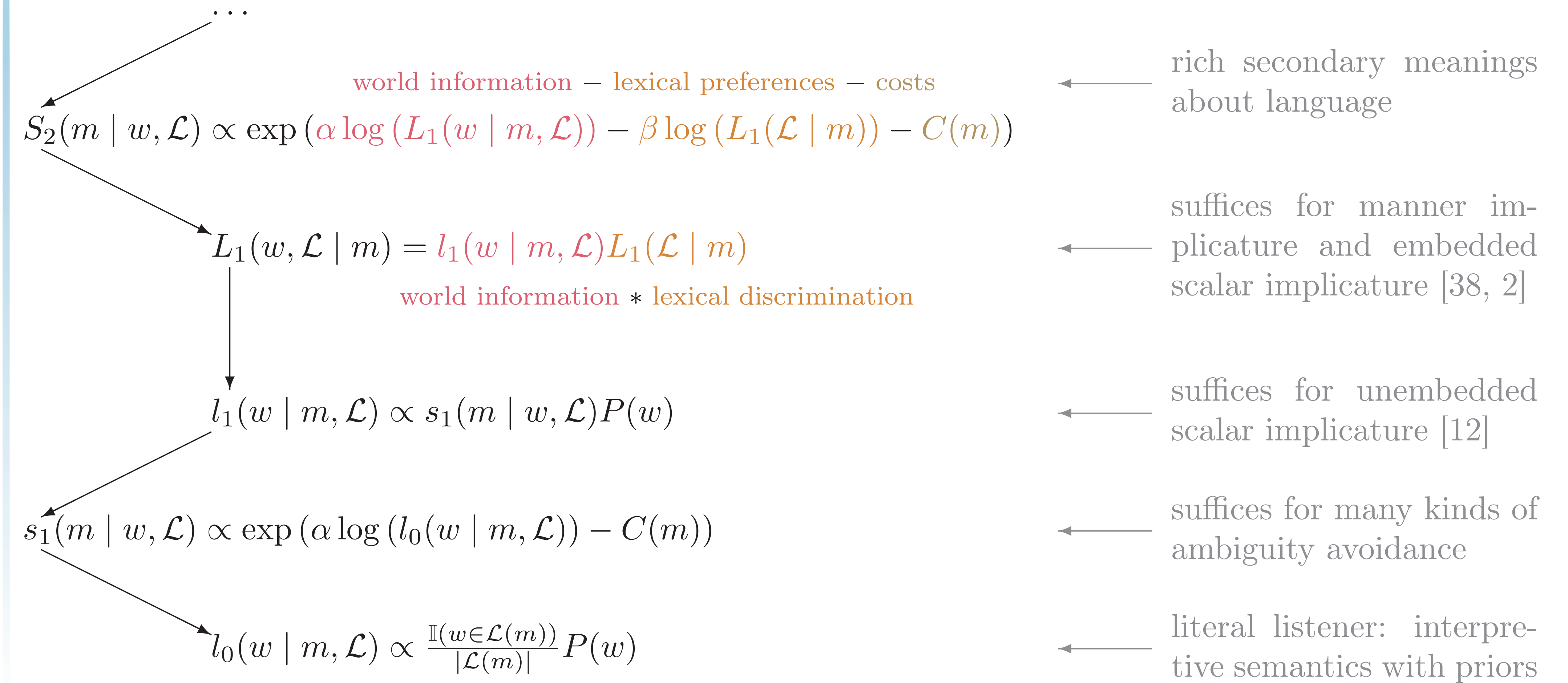
- Motivation: speaker is a known 'instructor'; listener is a known non-expert.
- Motivation: speaker wishes to display expertise to another expert.
- Motivation: speaker sees value in (temporarily or permanently) defining a term.

Attested in Chinese, German, Hebrew, Ilokano, Japanese, Russian, and Tagalog. Seems to survive even where the language has a dedicated definitional disjunction morpheme (e.g., Finnish, Italian).

FURTHER INFORMATION

Paper, references, model code, corpus data: <http://github.com/cgpotts/pypragmods/>

MODELING COMMUNICATION WITH ANXIOUS EXPERTS



DEFINITIONAL CONTEXTS

Require low disjunction costs and high β : the speaker is invested in communicating about the lexicon and can tolerate the cost of a disjunction that is synonymous with one of its disjuncts.

L_2 hears $A \text{ or } X$	w_1	w_2	$w_1 \vee w_2$
$\mathcal{L}^*[A: \{w_1\}, B: \{w_2\}, X: \{w_1, w_2\}]$	0	0	.08
$\mathcal{L}_1[A: \{w_1\}, B: \{w_2\}, X: \{w_2\}]$	.01	0	.08
$\mathcal{L}_2[A: \{\mathbf{w}_1\}, B: \{w_2\}, X: \{\mathbf{w}_1\}]$	.77	0	.06

$$\alpha = 5; \beta = 7; C(or) = .01$$

S_2 observes $\langle \mathcal{L}_2, w_1 \rangle$	A	X	$A \text{ or } X$
	.07	.48	.45

(bias against $A \text{ or } X$ is gone by S_3)

										↓		
L_1 hears $A \text{ or } X$										w_1	w_2	$w_1 \vee w_2$
$\mathcal{L}^*[A: \{w_1\}, B: \{w_2\}, X: \{w_1, w_2\}]$										0	0	.23
$\mathcal{L}_1[A: \{w_1\}, B: \{w_2\}, X: \{w_2\}]$										0	0	.38
$\mathcal{L}_2[A: \{w_1\}, B: \{w_2\}, X: \{w_1\}]$										.38	0	0
										↙		
l_1	\mathcal{L}^*	w_1	w_2	$w_1 \vee w_2$	\mathcal{L}_1	w_1	w_2	$w_1 \vee w_2$	\mathcal{L}_2	w_1	w_2	$w_1 \vee w_2$
	A	1	0	0	A	1	0	0	A	1	0	0
	X	.02	.02	.96	X	0	1	0	X	1	0	0
	A or X	.02	.02	.96	A or X	.01	0	.99	A or X	1	0	0
										↓		
s_1	\mathcal{L}^*	A	X	A or X	\mathcal{L}_1	A	X	A or X	\mathcal{L}_2	A	X	A or X
	w ₁	.98	0	0	w ₁	.99	0	0	w ₁	.33	.33	.33
	w ₂	0	0	0	w ₂	0	.33	0	w ₂	0	0	0
	w ₁ ∨ w ₂	0	.2	.2	w ₁ ∨ w ₂	0	0	.33	w ₁ ∨ w ₂	0	0	0
										↓		
l_0	\mathcal{L}^*	w_1	w_2	$w_1 \vee w_2$	\mathcal{L}_1	w_1	w_2	$w_1 \vee w_2$	\mathcal{L}_2	w_1	w_2	$w_1 \vee w_2$
	A	1	0	0	A	1	0	0	A	1	0	0
	X	.33	.33	.33	X	0	1	0	X	1	0	0
	A or X	.33	.33	.33	A or X	.33	.33	.33	A or X	1	0	0

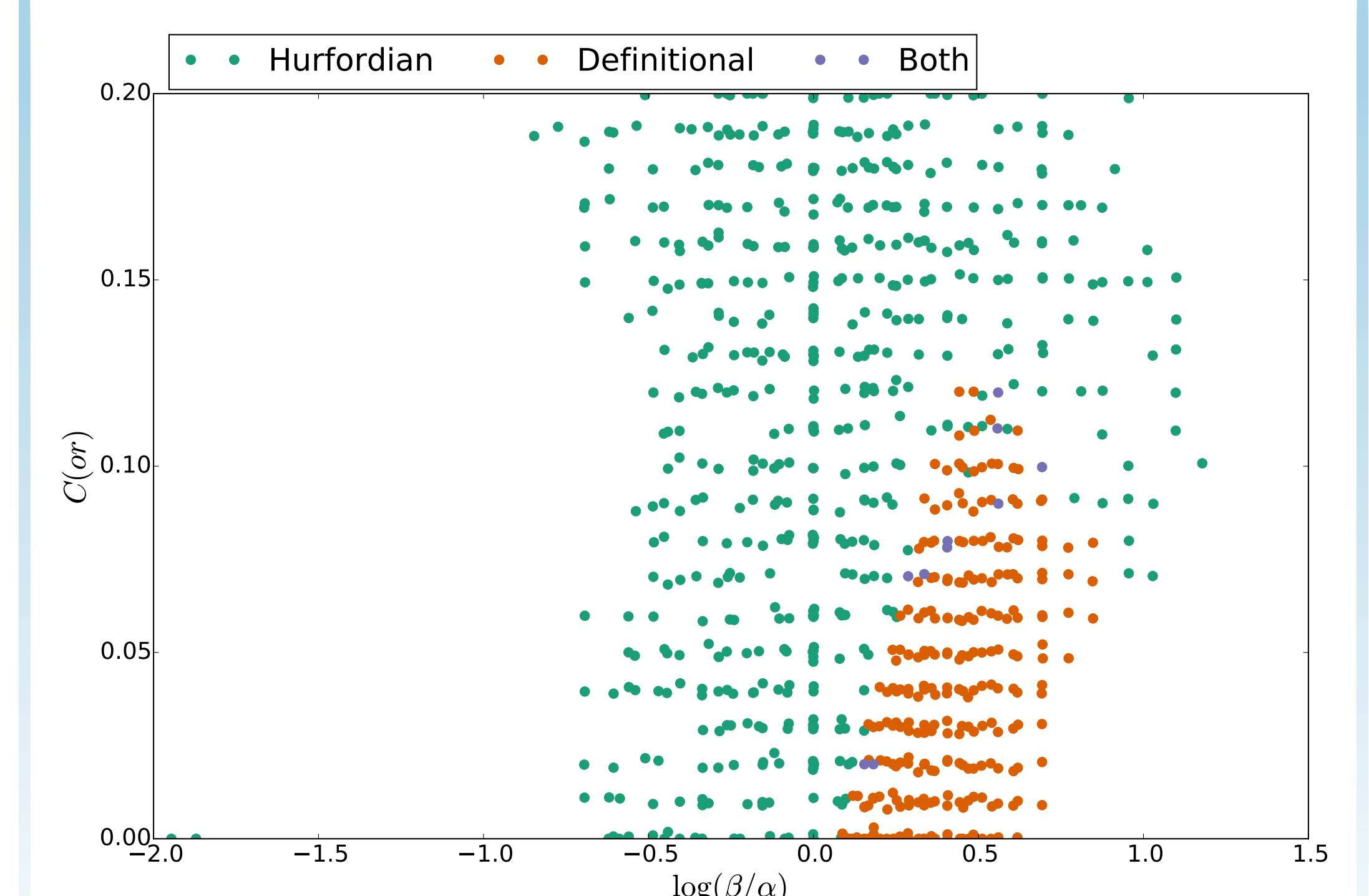
HURFORDIAN CONTEXTS

With high disjunction costs, exclusivization maximizes the justification for the long form; the Hurfordian instinct is a rational response to a disjunction that is unduly prolix for many lexica.

L_2 hears $A \text{ or } X$	w_1	w_2	$w_1 \vee w_2$
$\mathcal{L}^*[A: \{w_1\}, B: \{w_2\}, X: \{w_1, w_2\}]$	.02	0	.32
$\mathcal{L}_1[A: \{\mathbf{w}_1\}, B: \{w_2\}, X: \{\mathbf{w}_2\}]$	.04	0	.45
$\mathcal{L}_2[A: \{w_1\}, B: \{w_2\}, X: \{w_1\}]$	.03	0	.14

$$\alpha = 2; \beta = 1; C(or) = 1$$

CHARACTERIZATION



Summarizes a search over many parameter settings using a large lexicon and large world space.

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