I. The Point
i. Main Questions
• Islands containing resumptives are clearly marginal, so why are they so common in casual speech?
• How incremental is syntactic planning in production?
• Do people reformulate online to avoid ungrammaticality?
• What is the balance between ease of production and ease of comprehension?

ii. An Additional Concern
• How do we design tests for production phenomena?

II. Grammaticality Judgment Experiments
• Want to be sure that sentences with resumptive pronouns in gaps are marginal

i. Visual Acceptability Judgment
• Scale from 1 (perfect) to 5 (awful)

(1)

a. [This is a] [donkey] [that] [I don't know] [where it lives].
b. [This is a] [donkey] [that] [doesn't know] [where it lives].

• Sentences like (1a) at 3.3 while controls like (1b) are rated at 1.9
• But what if sentences like (1a) are better in a spoken register?

ii. Auditory Acceptability Judgment
• Results are 3.0 and 1.7 for sentences like (1a) and (1b) respectively
• These sentences really are worse for the comprehension system

III. Experiments to Elicit Island and Resumptive Sentences
• Prime syntactically to produce island

• Two conditions: RP+Island and “surface-structure control”

• 2 lists of 48 arrays of 3 pictures and captions each, half filler, one quarter RP+Island, one quarter surface-structure control

• Each array consisted of a picture with a descriptor such as “lives in California”, then a picture with the location in the descriptor changed, then a third picture with one of two captions depending on the condition:

RP+Island: “I don't know”
Surface-structure control: “doesn't know”

• RP+Island condition caption should lead to sentences like (1a), those with the surface-structure control should lead to sentences like (1b), note that both are identical in syllable count

• Subjects were shown the array one picture and caption at a time and instructed to remember each then given the pictures once more with the question “What is this?” replacing each caption

• Subjects were instructed to answer each picture's question with a full-sentence response including a noun, verb, and the descriptor

• Examples of good and bad responses were given:

Good: “This is a cat that likes fish.”
Bad: “This cat likes fish.”

<table>
<thead>
<tr>
<th>Figure 1: Paradigm to Elicit Island + Resumptive Sentences</th>
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</thead>
<tbody>
<tr>
<td><strong>1st Question</strong></td>
</tr>
<tr>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
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<tr>
<td><img src="image7.png" alt="Image" /></td>
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<tr>
<td><img src="image10.png" alt="Image" /></td>
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<tr>
<td><strong>Target sentence:</strong> “This is a donkey that lives in California.”</td>
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i. No Deadline Experiment
• Subjects instructed to answer as soon as they were ready, but also to make sure to use “good” sentences
• 35 participants, 5 discarded for analysis because they failed to produce enough utterances of the expected type

ii. Deadline Experiment
• 34 participants, 4 discarded for analysis
• Three exclamation points appeared with questions and began to rapidly disappear one by one with a “beep” once all had disappeared after 1750ms
• Various timings tested and 1750ms found to create adequate pressure without adversely affecting performance
• Voice terminated countdown
• Experimenter triggered deadline for second question began immediately after subject finished answering first question and likewise for third question

IV. Results and Analysis
• Only sentences describing the third picture in each array that included a deictic subject followed by is followed by a DP then a comp or wh-phrase that initiated the relative clause were included in the analysis

• Duration and initiation times measured, duration split among the bracketed areas in (1) repeated below for convenience:

(1) a. [This is a] [donkey] [that] [I don't know] [where it lives].
   b. [This is a] [donkey] [that] [doesn't know] [where it lives].

• More incremental planning should lead durations to diverge later in the utterance

• If time pressure leads to more incremental planning, deadline pairs should diverge later than no-deadline pairs

• Mean initiation times did not differ significantly between conditions:

No-deadline: RP+Island: 2328ms
              Surface-structure control: 2104ms
Deadline: RP+Island: 853ms
            Surface-structure control: 797ms

• Overall duration longer for RP+Island suggesting that they are indeed harder to produce

• Significant divergence begins at noun heading the relative clause and at the comp
Initiation times dropped significantly as expected

Duration of [I don't know] vs [doesn't know] varied significantly despite equal syllabic length

Divergence in time-pressure experiment came later indicating more incremental parsing and corroborating previous experimental evidence (see next section)

67% of RP+Island sentences resulted in the expected utterances for no-deadline, 53% for deadline

This is strange as we would expect that if these structures are “mistakes”, more would show up with increasingly incremental planning

18% in the no-deadline experiment applied strategies like left-dislocation or coordination to avoid the island violation while 21% did so with the deadline

Again, we would expect precisely the opposite, so the production mechanism must intend to produce these constructions, likely avoiding them in the deadline case due to the increased processing required

The conceptual system must therefore be unaware that it is passing a communicative intent that will be difficult to encode syntactically to the syntactic system, supporting a modular view

Production system is at least somewhat “egocentric” and appears to produce these sentences without taking into account the problems they pose to comprehension

V. An Additional Concern (Ferreira and Swets 2002)

Participants asked to answer arithmetic questions in the form of an utterance: The answer is fifty-eight.

At least one addend was comprised of two digits to prevent simple retrieval

If processing is incremental, durations should differ depending on the difficulty of the problem

Only initiation times were affected by the difficulty of the problem, not durations

Follow-up added a deadline indicated by a “beep”, reducing initiation times from two seconds to 700ms

Initiation times still varied, but duration varied as well indicating incremental planning

Accuracy not affected by deadline, but incrementality appears to be sensitive to extra-linguistic factors

Participants asked to answer arithmetic questions in the form of an utterance: The answer is fifty-eight.