Allotonic variants are not stored in the lexicon: evidence from a Ganong experiment with allotonic gaps

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Background: Allotonic gaps

The phenomenon

- Is ***ka*²** treated like a real word in Mandarin?
  - No: There's no word whose canonical pronunciation is *ka*²
  - Yes: There is a real word *ka*³ (卡), and it sometimes gets pronounced as *ka*² because of Third Tone Sandhi

Third Tone Sandhi

T3 → T2 / __ T3

我	电脑	卡	死了。
/*wo*³	*dian*⁴*nao*³	***ka*³**	*si*³ *–le*/
[*wo*³	*dian*⁴*nao*³	***ka*²**	*si*³ *–le*]
my	computer	slow	INTENSIFIER

"My computer is slow as heck!"

- ***ka*²** is an allotonic gap. **Will listeners react to it like it's a real word, or like it's a pseudoword?**

Why should we care?

- If allotonic gaps like ***ka*²** are treated like real words, that would mean…
  - We store all meaningful forms we hear
- If allotonic gaps like ***ka*²** are treated like pseudowords, that would mean…
  - We abstract away from surface details

The present study

- The **Ganong effect** (Ganong, 1980) can tell us whether a stimulus is processed like a word
- Here we use it to test whether allotonic gaps are processed like words

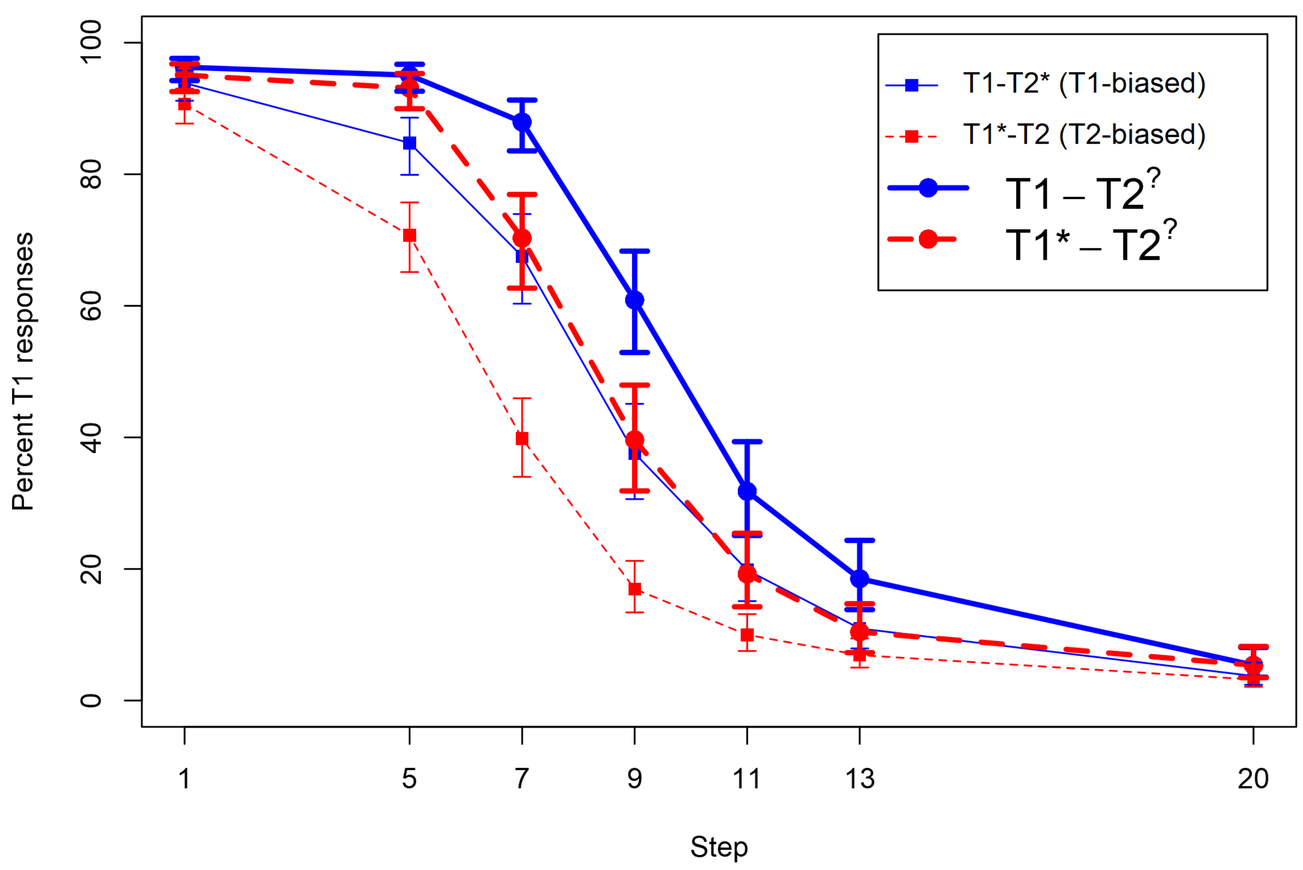
Design and predictions

Continuum	Syllables
T1-T2*	*diu, sai, yue*
T1*-T2	*huai, lai, ni*
T1-T2ʔ	*biao, jian, kai*
T1*-T2ʔ	*gei, nuan, nü*

*gap; ʔallotonic gap

- If allotonic gaps are treated as pseudowords:
  - T1-T2ʔ ≈ T1-T2*
  - Therefore, T1-T2ʔ will elicit more T1 responses than T1*-T2
- If allotonic gaps are treated as words:
  - T1*-T2ʔ ≈ T1*-T2
  - Therefore, T1*-T2ʔ will elicit fewer T1 responses than T1-T2*

Results (N=61)



- T1-T2ʔ > T1*-T2, suggesting T2ʔ is treated as a pseudoword
- T1*-T2ʔ !< T1-T2*, suggesting T2ʔ is not treated as a word

Discussion and conclusions

- While allotonic gaps are stimuli that people do hear in real life and process as meaningful, they aren't stored in the lexicon – to the lexicon, they might as well be pseudowords.
- Supports abstractionist accounts of lexical representation
- Unexpected result: T1-T2ʔ elicited more T1 responses than T1-T2*, even though they should have both been equally T1-biased
  - Maybe because the T1 words in the T1-T2ʔ continua had higher frequency overall

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