Post-Lexical Tone 3 Sandhi Domain-Building in Huai'an Mandarin: Multiple Domain Types and Free Application

Naiyan Du
Michigan State University

Yen-Hwei Lin
Michigan State University

Post-Lexical Tone 3 Sandhi Domain-Building in Huai'an Mandarin: Multiple Domain Types and Free Application

Abstract

Based on the production and acceptability data of tone sandhi patterns of the Huai'an dialect of Jianghuai Mandarin (Huai'an, hereafter) at the syntactic level, this paper argues that (i) both disyllabic and trisyllabic tone sandhi domains are basic domains in Huai'an, which differs from the traditional analysis where only disyllabic domain exists in the Mandarin language family and trisyllabic domain is derived, and (ii) as a consequence, both types of domains can be built freely at the post-lexical level as long as all the syllables are exhaustively incorporated. By positing both disyllabic and trisyllabic domains, the current proposal gives a succinct analysis of Tone 3 Sandhi in Huai'an, and removes the parameter of directionality. Furthermore, a lapse-based analysis (Elenbaas & Kager, 1999) involving a binary tone sandhi domain with an unparsed syllable is unlikely because it cannot produce the surface representation "(2 2 3)" (parenthesis indicates tone sandhi domain boundary and number indicates tone) where all three syllables must be included into one tone sandhi domain to generate the correct surface form in Huai'an. This study suggests more generally that ternary prosodic units, including ternary stress feet (Prince, 1980), can be independent domains in phonology.

Post-Lexical Tone 3 Sandhi Domain-Building in Huai'an Mandarin: Multiple Domain Types and Free Application

Naiyan Du and Yen-Hwei Lin[*]

1 Introduction

This paper examines the production and acceptability data of the syntactic level tone sandhi patterns in the Huai'an dialect of Jianghuai Mandarin (Huai'an, hereafter), and argues that (i) both disyllabic and trisyllabic tone sandhi domains are basic domains in Huai'an, which differs from the traditional analysis where only disyllabic domain exists in Mandarin languages and trisyllabic domain is derived, and (ii) as a consequence, both types of domains can be built freely at the post-lexical level as long as all the syllables are exhaustively incorporated.

Huai'an has four phonemic tones, labelled as Tone 1, Tone 2, Tone 3 and Tone 4. Following the tradition of tone description in Chinese languages, in Table 1, the four tones are given in tone letters (Chao 1930) on a scale of 1 to 5, where 1 is the lowest pitch and 5 is the highest pitch, and followed by a contour description. Tone 3 is a low-register tone and the rest are high-register tones. For the rest of the paper, I will only use number in examples to refer to tones but not to tone letters; for example, "3" refers to Tone 3.

Phonemic Tone	Tone Letter	Contour Description
Tone 1	42	high falling
Tone 2	24	high rising
Tone 3	212	low/low rising
Tone 4	55	high level

Table 1: Descriptions of phonemic tones in Huai'an.

Huai'an has 6 tone sandhi rules as stated in **Error! Reference source not found.**:

(1) Low-Register Tone Sandhi (Tone 3 Sandhi)
　　　 3 + 3 → 2 + 3

　　High-Register Tone Sandhi
　　　 1 + 1 → 3 + 1　　1 + 2 → 3 + 2　　1 + 4 → 3 + 4
　　　 4 + 4 → 3 + 4　　4 + 2 → 3 + 2

The focus of this paper is Tone 3 Sandhi, which is highly similar to Tone 3 Sandhi in Standard Mandarin for two reasons. First, the phonemes involved in this phonological process are highly similar. Both Tone 3 in Huai'an and Tone 3 in Standard Mandarin are low-register tones, and are realized phonetically as low tones at non-final positions and low tones plus final rising at final positions. Both Tone 2 in Huai'an and Tone 2 in Standard Mandarin are high-register rising tones. Second, both phonological processes obey right-headedness (Duanmu 1995), which means a Tone 3 undergoes tone sandhi with reference to another tone to the right as shown in (1).

However, unlike Standard Mandarin where only disyllabic tone sandhi domain is the basic domain type (Chen 2000, Shih 1997), both disyllabic and trisyllabic tone sandhi domains are basic domains in Huai'an. A tone sandhi domain is a prosodic domain within which tone sandhi applies.

In Standard Mandarin, according to Chen (2000) and Shih (1997), a trisyllabic sandhi domain only exists at sentence-final position through incorporation of a final stranded syllable after left-to-right binary parsing, as shown in (2):

(2) 3 3 3 3 3 3 3 → (2 3)(2 3)(2 3)3 → (2 3)(2 3)(2 2 3)

In Huai'an, however, a trisyllabic domain can appear at sentence-initial, sentence-medial and sentence-final positions. Furthermore, all the logical combinations of disyllabic and trisyllabic domains are attested for 5-syllable, 6-syllable and 7-syllable utterances consisting only of monosyllabic words, as shown in (3), which suggests that both disyllabic and trisyllabic domains function as basic domain in Huai'an (UR = underlying representation and SR = surface representation).

(3) a. li   ɕiæ̃   ɕiæ̃   o   tɕiɯ
      you   want grab me   wine
      "You want to rob me of wine."
      UR   3   3   3   3 3
      SR1   (2 3)(2 2 3)
      SR2   (2 2 3)(2 3)

    b. li   tsuŋ   ɕiæ̃   ɕiæ̃   o   tɕiɯ
      you   always want grab me   wine
      "You always want to rob me of wine."
      UR   3   3   3   3   3
      SR1   (2 3)(2 3)(2 3)
      SR2   (2 2 3)(2 2 3)

    c. li   tsuŋ   kæ̃   ɕiæ̃   ɕiæ̃   o   tɕiɯ
      you always dare want grab me   wine
      "You always seek to rob me of wine."
      UR   3 3 3 3 3 3 3
      SR1   (2 2 3)(2 3)(2 3)
      SR2   (2 3)(2 2 3)(2 3)
      SR3   (2 3)(2 3)(2 2 3)

2 The Experiments

To confirm the patterns presented in Section 1, we conducted two experiments. Experiment I was a production task through PsychoPy2 (Peirce et al. 2019) where 10 native speakers of Huai'an (6 male, 4 female, age 22 to 56) pronounced a list of 5-syllable to 7-syllable utterances similar to (3), namely consisting only of monosyllabic words. All the stimuli were included in the Appendix. Although all the participants were native speakers of both Huai'an and Standard Mandarin, they were explicitly asked to read only in Huai'an for the experiment. A native speaker of Huai'an (first author) checked all the recordings to ensure only Huai'an was used. All the participants were born and raised in Huai'an city.

The data of the production task was impressionistically annotated and counted by a native speaker of Huai'an (first author). The accuracy was checked by a match rate of 94% with a second native speaker annotator on 100 tokens that were randomly picked. The results are shown in Table 2 (next page).

As shown in Table 2, all logically possible combinations exist in natural speech, which confirms our analysis that both disyllabic and trisyllabic tone sandhi domains are basic domains in Huai'an. It is worth noting that not all combinations are equally preferred. For example, for 5-syllable stimuli, "(2 3)(2 2 3)" is preferred over "(2 2 3)(2 3)" based on higher count. The preference issue is not the focus of this paper. We will leave it to future research.

Stimulus	Surface Representation	Count
5-syllable	(2 2 3)(2 3)	83
	(2 3)(2 2 3)	182
6-syllable	(2 2 3)(2 2 3)	65
	(2 3)(2 3)(2 3)	77
7-syllable	(2 2 3)(2 3)(2 3)	27
	(2 3)(2 2 3)(2 3)	5
	(2 3)(2 3)(2 2 3)	6

Table 2: Experiment I results: Counts for each combination of 5-syllable, 6-syllable and 7-syllable stimuli, each combination given by multiple participants.

It is also worth noting that not all the examples collected in Experiment I are reported in Table 2. The example condition is summarized in Table 3. The main reason why some examples do not fit into the patterns reported in Table 2 is that the boundary between subject and predicate can optionally block the application of Tone 3 Sandhi in Huai'an, resulting in monosyllabic subjects in the stimuli to stay outside of a tone sandhi domain, e.g. "3 (23) (223)" when the first tone is a monosyllabic subject. These cases are reported in the rightmost column in Table 3. There are a small number of ambiguous data points that the annotator cannot tell the exact lexical tones. These cases are reported in the second to the right column in Table 3. Any potential influence of syntactic constituents is also not the focus of this paper, and is still under investigation.

Stimulus	Examples reported in Table 1	All examples collected from Experiment I	Ambiguous examples	Examples undergoing other rules not focused in this study
5-syllable	265	49x10=490	4	221
6-syllable	142	32x10=320	6	172
7-syllable	38	12x10=120	2	80

Table 3: Experiment I: Numbers of 5-syllable, 6-syllable and 7-syllable stimuli.

Experiment II was an acceptability judgement task where all logically possible domain combinations were compared with the obviously ungrammatical surface representation where no Tone 3 Sandhi was involved. By this logic, for example, for the utterance in (3a), the expected grammatical surface representations of "(2 3)(2 2 3)" and "(2 2 3)(2 3)" should be compared with the ungrammatical surface representation of "3 3 3 3 3" where no syllables underwent Tone 3 Sandhi. The prediction was that native speakers of Huai'an should judge all logically possible combinations to be significantly better than the ungrammatical surface representation where no syllables underwent Tone 3 Sandhi. In this experiment, instead of using utterances at the post-lexical level as in (3), 6-syllable and 7-syllable flat-structure loanwords were employed to avoid potential influence of syntactic structures. Since T3 sandhi domain-building processes for flat-structure loanwords and the post-lexical utterances are identical (Chen 2000), the tone sandhi patterns of both types of utterances are expected to be the same. The two stimuli are shown in (4):

(4) Two Novel Foreign Names
6-syllable word: mi ka ma ua li er
7-syllable word: mi ka ma ua li pɔ er

The two words were created to avoid any combination of adjacent syllables resulting in real meaningful words in Huai'an. Therefore, there was no internal morphological structures, which could also have an influence on the Tone 3 Sandhi domain-building process.

The participants were 6 native speakers of Huai'an (1 male, 5 female, age 22 to 51). 5 of them had participated in Experiment I. The interval of the two experiments was about two months, so

these speakers were unlikely to be influenced by their participation of Experiment I. In addition, all participants of Experiment I had been interviewed about what they thought the research question was after they completed the experiment, and none of them gave the right answer including the five speakers who later participated in Experiment II. The five speakers were not told the right answer until they finished Experiment II so the results of Experiment II should be considered to be reliable.

Judgement of acceptability was given on a scale of 1 to 7 with 1 being completely unacceptable and 7 being completely acceptable. The results are shown in Table 4.

Stimulus	Pairs compared	Wilcoxon test result
6-syllable	(2 2 3)(2 2 3) ~ *333333	V = 21, p = 0.03
	(2 3)(2 3)(2 3) ~ *333333	V = 15, p = 0.06
7-syllable	(2 2 3)(2 3)(2 3)~*3333333	V = 21, p = 0.04
	(2 3)(2 2 3)(2 3) ~*3333333	V = 21, p = 0.04
	(2 3)(2 3)(2 2 3) ~*3333333	V = 17.5, p = 0.17

Table 4: Experiment II results: Wilcoxon test results for pairs of expected grammatical combinations and ungrammatical surface representations for a 6-syllable and a 7-syllable loanwords.

As confirmed by a Wilcoxon test, all logically possible combinations are significantly better than ungrammatical surface representations, which supports our analysis that all logically possible combinations are grammatical.

3 Other Evidence

Another piece of evidence comes from phonology. In Standard Mandarin, the disyllabification process (Chen 2000) is taken to reject treating a trisyllabic domain as a possible basic tone sandhi domain type. An example (Chen 2000:367) is shown in (5):

(5) foreign nation language   foreign language
       uai   kuɔ   y   →   uai   y
       "foreign language"

The argument is that since a trisyllabic word is usually abbreviated as a disyllabic version for common use as in (5), a trisyllabic prosodic unit is not preferred by native speakers of Standard Mandarin. Therefore, only the disyllabic tone sandhi domain can be a basic domain in Standard Mandarin. However, there is no such process in Huai'an, indicating that a trisyllabic tone sandhi domain can also be a basic sandhi domain of Huai'an. An example comes from a local high school name. Although the school name contains the trisyllabic version of "foreign language", the abbreviated disyllabic version is not acceptable for native speakers of Huai'an.

(6) Chuzhou foreign nation language   *Chuzhou   foreign   language
       sʰu-tsəɯ   uɛ   ko   y   →   *tsʰu-tsəɯ   uɛ   y
       "Chuzhou Foreign Language High School (a high school in Huai'an City)"

4 Conclusion

By positing both disyllabic and trisyllabic domains, the current proposal gives a succinct analysis of Tone 3 Sandhi in Huai'an, and removes the parameter of directionality. Disyllabic and trisyllabic tone sandhi domains can be built freely when all the syllables are exhaustively parsed. Furthermore, a lapse-based analysis (Elenbaas and Kager 1999) involving a binary tone sandhi domain with an unparsed syllable is unlikely because it cannot produce the surface representation "(2 2 3)" where all three syllables must be included into one tone sandhi domain to generate the correct surface form in Huai'an. This study suggests more generally that ternary prosodic units, including ternary stress feet (Prince 1980), can be independent domains in phonology.

References

Chao, Yuen-Ren. 1930. A system of tone-letters. *Le Maître Phonétique* 30:24–27.

Chen, Matthew Y. 2000. *Tone sandhi: Patterns across Chinese Dialects*. Cambridge: Cambridge University Press.

Duanmu, San. 1995. Metrical and tonal phonology of compounds in two Chinese dialects. *Language* 71:225–259.

Elenbaas, Nine, and René Kager. 1999. Ternary rhythm and the lapse constraint. *Phonology* 16:273-329.

Peirce, Jonathan, Jeremy R. Gray, Sol Simpson, Michael MacAskill, Richard Höchenberger, Hiroyuki Sogo, Erik Kastman, and Jonas Kristoffer Lindeløv. 2019. PsychoPy2: Experiments in behavior made easy. *Behavior Research Methods* 51:195–203.

Prince, Alan S. 1980. A metrical theory for Estonian quantity. *Linguistic Inquiry* 11:511–562.

Shih, Chilin. 1997. Mandarin third tone sandhi and prosodic structure. *Linguistic Models* 20:81–124.

Appendix

Tone 3 Sandhi at the Post-Lexical Level		
Syntactic Category of Each Syllable	Character	IPA
5-syllable		
DP/AdvP/AUX/V/DP	你总敢抢酒	li tsuŋ kæ̃ ɕiæ̃ tɕiəɯ
	姐总敢抢酒	tɕɪ tsuŋ kæ̃ ɕiæ̃ tɕiəɯ
DP/AdvP/AUX/P/DP(/VP)	你总敢与我(唱歌)	li tsuŋ kæ̃ y o (tsʰaŋ ku)
	你总敢与姐(唱歌)	li tsuŋ kæ̃ y tɕɪ (tsʰaŋ ku)
	姐总敢与你(唱歌)	tɕɪ tsuŋ kæ̃ y li (tsʰaŋ ku)
	沈总敢与姐(唱歌)	sən tsuŋ kæ̃ y tɕɪ (tsʰaŋ ku)
DP/AUX/V/DP/DP	你敢抢我酒	li kæ̃ ɕiæ̃ o tɕiəɯ
	你敢抢姐酒	li kæ̃ ɕiæ̃ tɕɪ tɕiəɯ
	姐敢抢你酒	tɕɪ kæ̃ ɕiæ̃ li tɕiəɯ
	沈敢抢姐酒	sən kæ̃ ɕiæ̃ tɕɪ tɕiəɯ
DP/AUX/V/V/DP	你敢想抢酒	li kæ̃ ɕiæ̃ ɕiæ̃ tɕiəɯ
	姐敢想抢酒	tɕɪ kæ̃ ɕiæ̃ ɕiæ̃ tɕiəɯ
DP/AdvP/V/DP/DP	你总抢我酒	li tsuŋ ɕiæ̃ o tɕiəɯ
	你总抢姐酒	li tsuŋ ɕiæ̃ tɕɪ tɕiəɯ
	姐总抢你酒	tɕɪ tsuŋ ɕiæ̃ li tɕiəɯ
	沈总抢姐酒	sən tsuŋ ɕiæ̃ tɕɪ tɕiəɯ
DP/V/V/DP/DP	你想抢我酒	li ɕiæ̃ ɕiæ̃ o tɕiəɯ
	你想抢姐酒	li ɕiæ̃ ɕiæ̃ tɕɪ tɕiəɯ
	姐想抢你酒	tɕɪ ɕiæ̃ ɕiæ̃ li tɕiəɯ
	沈想抢姐酒	sən ɕiæ̃ ɕiæ̃ tɕɪ tɕiəɯ
DP/AdvP/P/DP/V(/DP)	你总与我抢(钱)	li tsuŋ y o ɕiæ̃ tɕiəɯ

	你总与姐抢(钱)	li tsuŋ y tɕɪ ɕiæ̃ tɕiəɯ
	姐总与你抢(钱)	tɕɪ tsuŋ y li ɕiæ̃ tɕiəɯ
	沈总与姐抢(钱)	sən tsuŋ y tɕɪ ɕiæ̃ tɕiəɯ
DP/AUX/P/DP/V(/DP)	你敢与我抢(钱)	li kæ̃ y o ɕiæ̃ tɕiəɯ
	你敢与姐抢(钱)	li kæ̃ y tɕɪ ɕiæ̃ tɕiəɯ
	姐敢与你抢(钱)	tɕɪ kæ̃ y li ɕiæ̃ tɕiəɯ
	沈敢与姐抢(钱)	sən kæ̃ y tɕɪ ɕiæ̃ tɕiəɯ
AdvP/AUX/V/V/DP	总敢想抢酒	tsuŋ kæ̃ ɕiæ̃ ɕiæ̃ tɕiəɯ
AdvP/AUX/V/DP/DP	总敢抢你酒	tsuŋ kæ̃ ɕiæ̃ li tɕiəɯ
	总敢抢姐酒	tsuŋ kæ̃ ɕiæ̃ tɕɪ tɕiəɯ
AdvP/AUX/P/DP/V(/DP)	总敢与你抢(钱)	tsuŋ kæ̃ y li ɕiæ̃ (tɕʰiĩ)
	总敢与姐抢(钱)	tsuŋ kæ̃ y tɕɪ ɕiæ̃ (tɕʰiĩ)
AdvP/V/V/DP/DP	总想抢你酒	tsuŋ ɕiæ̃ ɕiæ̃ li tɕiəɯ
	总想抢姐酒	tsuŋ ɕiæ̃ ɕiæ̃ tɕɪ tɕiəɯ
AdvP/P/DP/V/DP	总与你抢酒	tsuŋ y li ɕiæ̃ tɕiəɯ
	总与姐抢酒	tsuŋ y tɕɪ ɕiæ̃ tɕiəɯ
AUX/V/V/DP/DP	敢想抢你酒	kæ̃ ɕiæ̃ ɕiæ̃ li tɕiəɯ
	敢想抢姐酒	kæ̃ ɕiæ̃ ɕiæ̃ tɕɪ tɕiəɯ
AUX/P/DP/V/DP	敢与你抢酒	kæ̃ y li ɕiæ̃ tɕiəɯ
	敢与姐抢酒	kæ̃ y tɕɪ ɕiæ̃ tɕiəɯ
DP/V/DP/V/DP	你想我抢酒	li ɕiæ̃ o ɕiæ̃ tɕiəɯ
	你想姐抢酒	li ɕiæ̃ tɕɪ ɕiæ̃ tɕiəɯ
	姐想你抢酒	tɕɪ ɕiæ̃ li ɕiæ̃ tɕiəɯ
	沈想姐抢酒	sən ɕiæ̃ tɕɪ ɕiæ̃ tɕiəɯ
DP/V/DP/P/DP(/V/DP)	你想我与你(唱歌)	li ɕiæ̃ o y li (tsʰaŋ ku)
	你想姐与你(唱歌)	li ɕiæ̃ tɕɪ y li (tsʰaŋ ku)
	姐想你与姐(唱歌)	tɕɪ ɕiæ̃ li y tɕɪ (tsʰaŋ ku)
	沈想姐与沈(唱歌)	sən ɕiæ̃ tɕɪ y sən (tsʰaŋ ku)
6-syllable		
DP/AdvP/AUX/V/DP/DP	你总敢抢我酒	li tsuŋ kæ̃ ɕiæ̃ o tɕiəɯ
	你总敢抢姐酒	li tsuŋ kæ̃ ɕiæ̃ tɕɪ tɕiəɯ
	姐总敢抢你酒	tɕɪ tsuŋ kæ̃ ɕiæ̃ li tɕiəɯ
	沈总敢抢姐酒	sən tsuŋ kæ̃ ɕiæ̃ tɕɪ tɕiəɯ
DP/AdvP/AUX/P/DP/V(/DP)	你总敢与我抢(钱)	li tsuŋ kæ̃ y o ɕiæ̃ (tɕʰiĩ)

	你总敢与姐抢(钱)	li tsuŋ kæ̃ y tɐɪ ɕiæ̃ (tɕʰiĩ)
	姐总敢与你抢(钱)	tɐɪ tsuŋ kæ̃ y li ɕiæ̃ (tɕʰiĩ)
	沈总敢与姐抢(钱)	sən tsuŋ kæ̃ y tɐɪ ɕiæ̃ (tɕʰiĩ)
DP/AUX/V/V/DP/DP	你敢想抢我酒	li kæ̃ ɕiæ̃ ɕiæ̃ o tɕiəɯ
	你敢想抢姐酒	li kæ̃ ɕiæ̃ ɕiæ̃ tɐɪ tɕiəɯ
	姐敢想抢你酒	tɐɪ kæ̃ ɕiæ̃ ɕiæ̃ li tɕiəɯ
	沈敢想抢姐酒	sən kæ̃ ɕiæ̃ ɕiæ̃ tɐɪ tɕiəɯ
DP/AdvP/P/DP/V/DP	你总与我抢酒	li tsuŋ y o ɕiæ̃ tɕiəɯ
	你总与姐抢酒	li tsuŋ y tɐɪ ɕiæ̃ tɕiəɯ
	姐总与你抢酒	tɐɪ tsuŋ y li ɕiæ̃ tɕiəɯ
	沈总与姐抢酒	sən tsuŋ y tɐɪ ɕiæ̃ tɕiəɯ
DP/AUX/P/DP/V/DP	你敢与我抢酒	li kæ̃ y o ɕiæ̃ tɕiəɯ
	你敢与姐抢酒	li kæ̃ y tɐɪ ɕiæ̃ tɕiəɯ
	姐敢与你抢酒	tɐɪ kæ̃ y li ɕiæ̃ tɕiəɯ
	沈敢与姐抢酒	sən kæ̃ y tɐɪ ɕiæ̃ tɕiəɯ
AdvP/AUX/V/V/DP/DP	总敢想抢你酒	tsuŋ kæ̃ ɕiæ̃ ɕiæ̃ li tɕiəɯ
	总敢想抢姐酒	tsuŋ kæ̃ ɕiæ̃ ɕiæ̃ tɐɪ tɕiəɯ
AdvP/AUX/P/DP/V/DP	总敢与你抢酒	tsuŋ kæ̃ y li ɕiæ̃ tɕiəɯ
	总敢与姐抢酒	tsuŋ kæ̃ y tɐɪ ɕiæ̃ tɕiəɯ
DP/V/DP/V/DP/DP	你想我抢你酒	li ɕiæ̃ o ɕiæ̃ li tɕiəɯ
	你想姐抢你酒	li ɕiæ̃ tɐɪ ɕiæ̃ li tɕiəɯ
	姐想你抢姐酒	tɐɪ ɕiæ̃ li ɕiæ̃ tɐɪ tɕiəɯ
	沈想姐抢沈酒	sən ɕiæ̃ tɐɪ ɕiæ̃ sən tɕiəɯ
DP/V/DP/P/DP/V(/DP)	你想我与你抢(钱)	li ɕiæ̃ o y li (tsʰaŋ ku)
	你想姐与你抢(钱)	li ɕiæ̃ tɐɪ y li (tsʰaŋ ku)
	姐想你与姐抢(钱)	tɐɪ ɕiæ̃ li y tɐɪ (tsʰaŋ ku)
	沈想姐与沈抢(钱)	sən ɕiæ̃ tɐɪ y sən (tsʰaŋ ku)
7-syllable		
DP/AdvP/AUX/V/V/DP/DP	你总敢想抢我酒	li tsuŋ kæ̃ ɕiæ̃ ɕiæ̃ o tɕiəɯ
	你总敢想抢姐酒	li tsuŋ kæ̃ ɕiæ̃ ɕiæ̃ tɐɪ tɕiəɯ
	姐总敢想抢你酒	tɐɪ tsuŋ kæ̃ ɕiæ̃ ɕiæ̃ li tɕiəɯ
	沈总敢想抢姐酒	sən tsuŋ kæ̃ ɕiæ̃ ɕiæ̃ tɐɪ tɕiəɯ
DP/AdvP/AUX/P/DP/V/DP	你总敢与我抢酒	li tsuŋ kæ̃ y o ɕiæ̃ tɕiəɯ
	你总敢与姐抢酒	li tsuŋ kæ̃ y tɐɪ ɕiæ̃ tɕiəɯ

	姐总敢与你抢酒	tɕɛ tsuŋ kæ̃ y li ɕiæ̃ tɕiəɯ
	沈总敢与姐抢酒	sən tsuŋ kæ̃ y tɕɛ ɕiæ̃ tɕiəɯ
8-syllable		
DP/AdvP/AUX/V/P/DP/V/DP	你总敢想与我抢酒	li tsuŋ kæ̃ ɕiæ̃ y o ɕiæ̃ tɕiəɯ
	你总敢想与姐抢酒	li tsuŋ kæ̃ ɕiæ̃ y tɕɛ ɕiæ̃ tɕiəɯ
	姐总敢想与你抢酒	tɕɛ tsuŋ kæ̃ ɕiæ̃ y li ɕiæ̃ tɕiəɯ
	沈总敢想与姐抢酒	sən tsuŋ kæ̃ ɕiæ̃ y tɕɛ ɕiæ̃ tɕiəɯ

Department of Linguistics and Languages
Michigan State University
East Lansing, MI 48824
dunaiyan@msu.edu
liny@msu.edu