Perception and Analysis of Utterance-Final Lengthening of Cantonese max³³

Chaak-ming Lau (The Chinese University of Hong Kong) chaakming@gmail.com

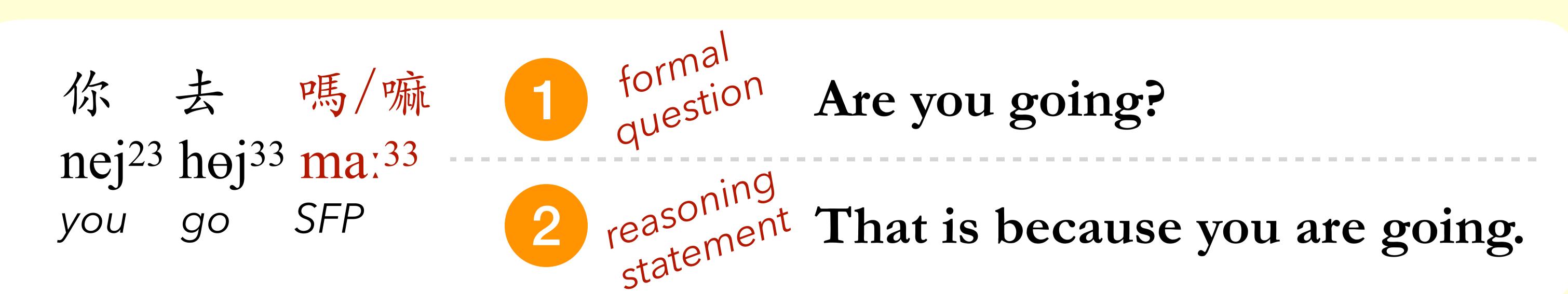
24th - 25th May 2019 HisPhonCog @ Hanyang University, Korea

Nutshell

This paper investigates the perception of the Cantonese sentence final particle (SFP) max³³, and confirms that its two distinctive usages (formal question vs reasoning statement) can be perceived by native speakers in a response-choice task. Further analysis reveals that the duration of the statement particle is significantly longer, and can be analysed as the combination of SFP max³³ and boundary lengthening x%.

Background

This paper explores the two distinct realisations of SFP max³³ [1], which are near homophones with distinct discourse functions.



Can native speakers tell them apart? How?

Note: The same morpheme can also be found in Mandarin, and the functions can be distinguished by pitch [2].

Experiment

Goal: to establish that the two kinds of max³³ can be perceived by native speakers, i.e. whether it is a question or a statement is not judged by context only.

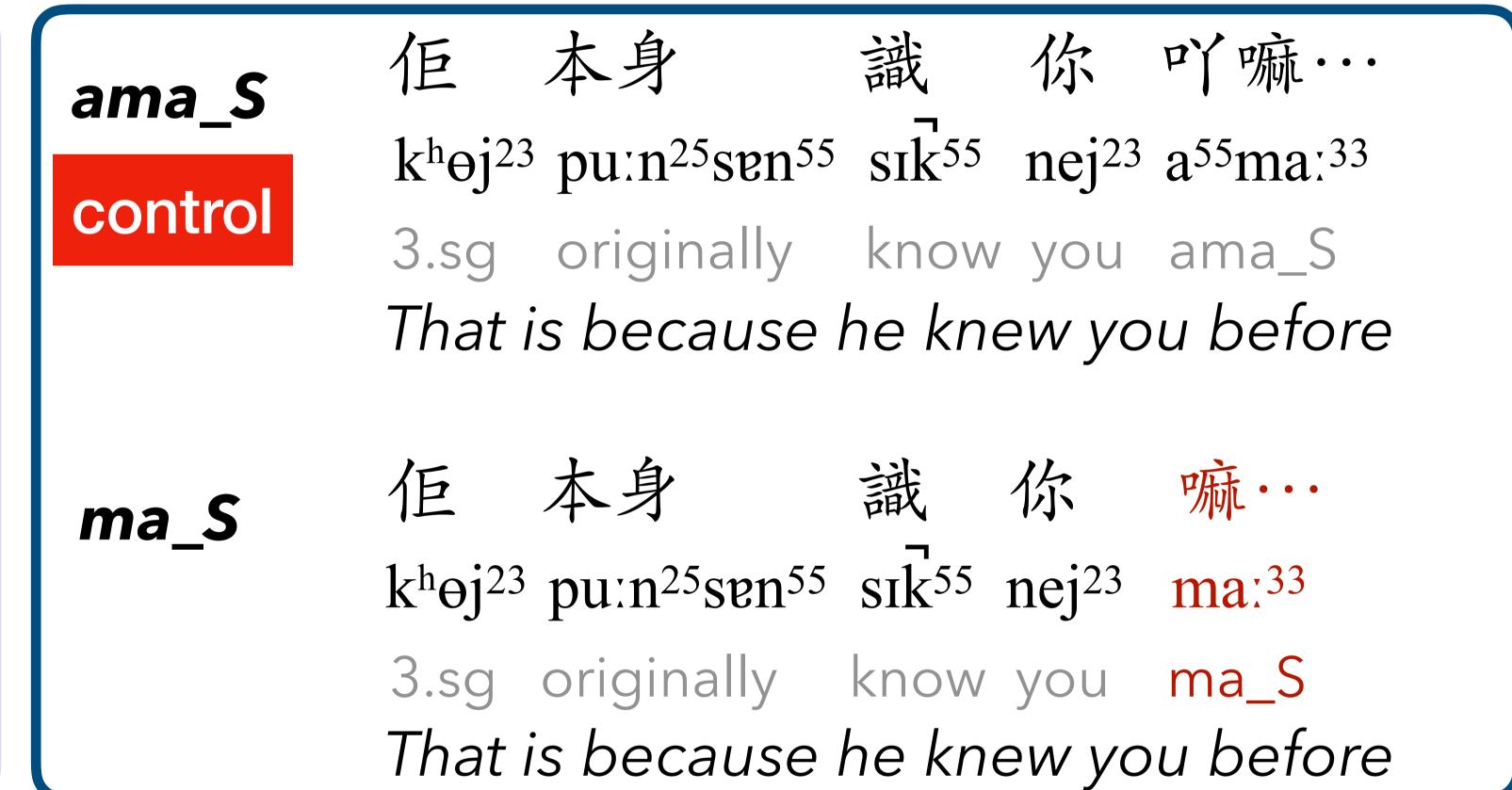
Task: Subjects were asked to choose the correct response to answer a friend's recorded message in an simulated instant messenger. In each trial, the subject would see a message written in Cantonese (in Han characters) that was supposedly sent by the subject, and then the subject would hear a recorded message form a friend. Next the subject should respond to this friend by choosing the correct message from two available options.

Stimuli: There were 24 groups of sentences, presented in one of the four conditions (Latin Square Design). 48 groups of fillers were added.

Questions

A_not_A 佢 本身 識唔識 你 嚟? khej²³ pu:n²⁵sɛn⁵⁵ sɪk⁵⁵m²¹sɪk⁵⁵ nej²³ ka:³³ 3.sg originally know_Q you SFP Did he know you before? ma_Q 佢 本身 識 你 嗎? khej²³ pu:n²⁵sɛn⁵⁵ sɪk⁵⁵ nej²³ ma:³³ 3.sg originally know you ma_Q Did he know you before?

Reasoning Statements



The two choices were *answers* (e.g. "Yes, he knew.", valid for questions) and *doubts* (e.g. "Oh really?", valid for reasoning statements). The statements were recorded by a female speaker who was given an appropriate context so that the resulting recordings would be in expected intonations.



Results: Subjects were expected to choose answers in response to the questions, and doubts in response to reasoning statements. That describes the general trend of the controls and the ma_S condition. The response type for ma_Q (that is question usage of the particle) was less clear, probably because some subjects found doubts could also be used as valid responses to questions.

Fig.1. Screenshot of the experiment

Discussion: One would expect a chance-level performance (i.e. 48-48 for both ma_S and ma_Q) if the two functions were purely judged by context. The experiment showed that this distinction is indeed categorical and can be perceived by native speakers in a judgement task.

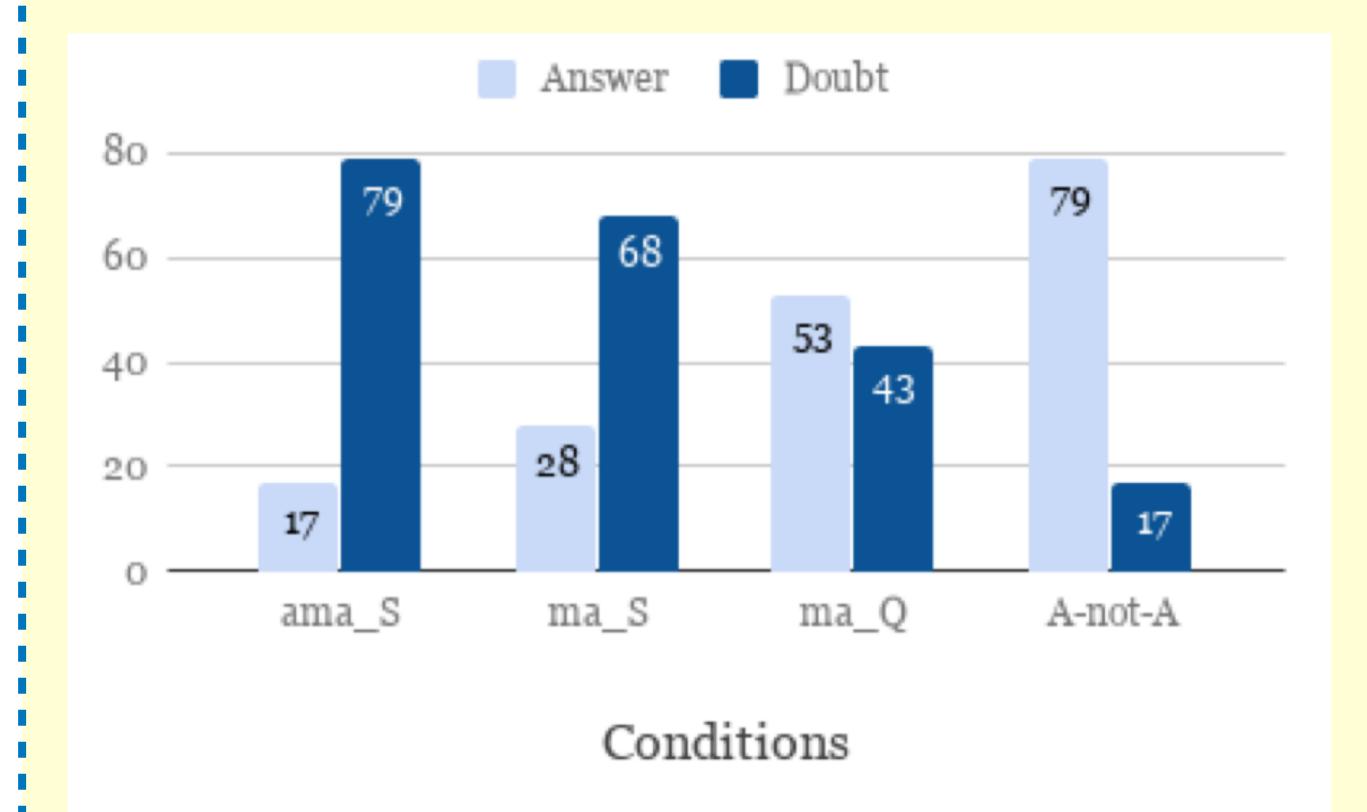


Fig.2. Answer versus Doubt

Post-hoc analysis

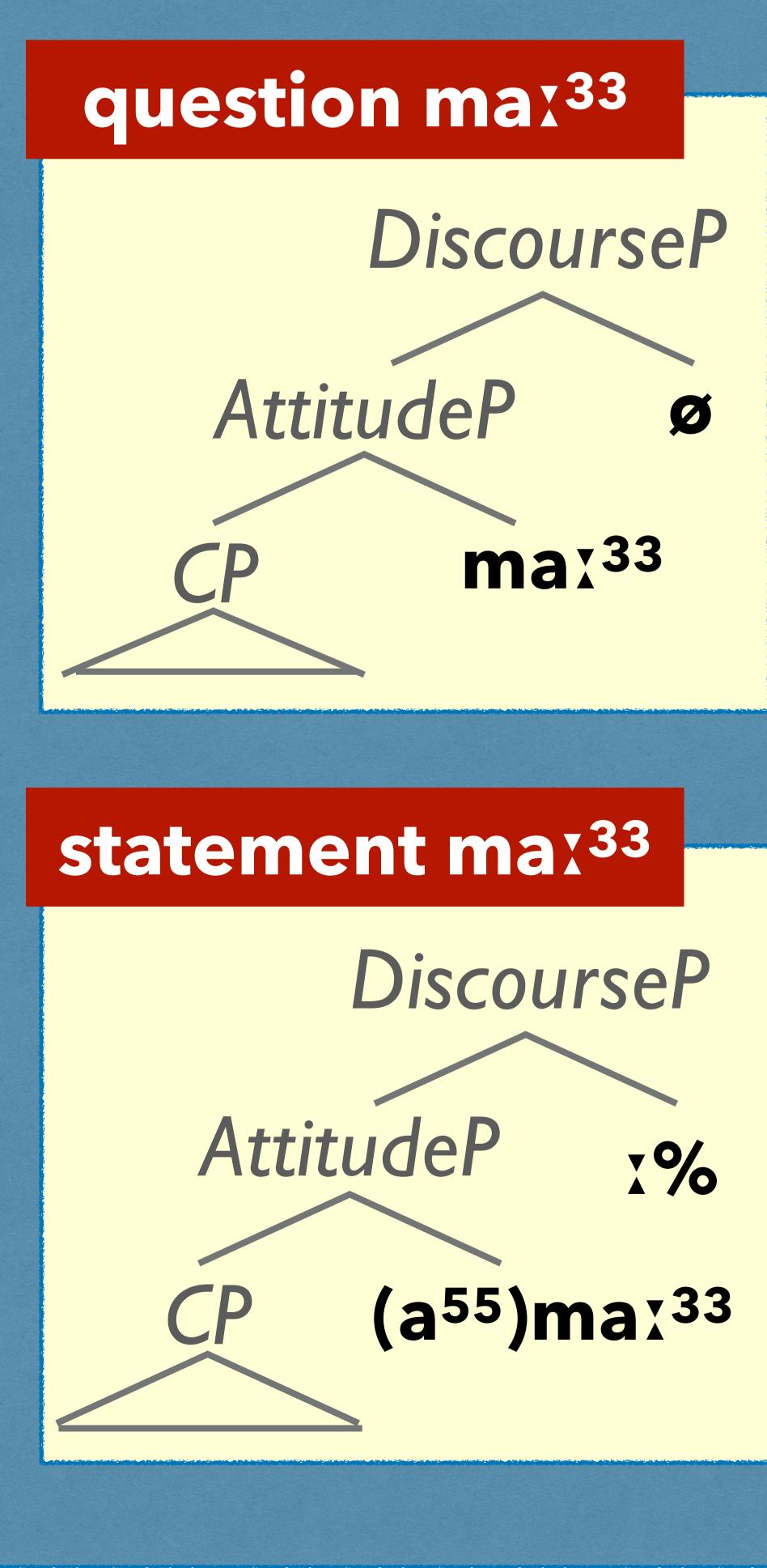
Recorded stimuli (48 recordings) were analysed to confirm the difference in phonetic realisation of the two usages. Both kinds of max^{33} show slight declination (a drop of less than 5Hz for both), and the statement usage is significantly longer than question (statement max^{33} μ =470ms, S.D.=39.2; question max^{33} μ =198ms, S.D.=28.4).

Proposal

A boundary lengthening morpheme I% that heads the top-most syntactic projection systematically lengthens the last syllable of an utterance in Cantonese. Boundary tones are usually not compatible with SFPs, e.g. interrogative LH% cannot occur with any SFPs. This paper argues that the incompatibility solely syntactic.

Implications

Cantonese has a dense specification of tones, and it is likely that the temporal dimension is used as an alternative to F0 for intonation morphemes. This study confirms the impressionistic description about the "protracted intonation" [3], which should be added to the boundary tone inventory, detailed in Cantonese ToBI [4]. The grammaticality of the co-occurrence of boundary tones and SFPs can be used to ascertain the hierarchical structure of the left periphery [5]. If this lengthening (1%) is analysed as an intonation morpheme that heads a projection, then one needs to explain why it occurs after max³³, which is supposed to be the highest projection (AttitudeP)[6]. One either needs to analyse max³³ as a syntactically lower element, or assume other higher projections. Syntactic analysis of the left periphery would certainly benefit from further investigation of boundary tones in other SFP languages.



References

- [1] Leung, C.-S. (2005). A Study of the Utterance Particles in Cantonese as Spoken in Hong Kong. Hong Kong: Language Information Sciences Research Centre, City University of Hong Kong.
- [2] Xiong, Z.-Y. (2005). Putonghua-zhong "ma"-zi Shifei Wenju de Yudiao Yin'gao Tezheng Fenxi [Pitch Feature Analysis of Intonation of "ma" yes-no questions in Putonghua]. Technical Acoustics 2015.24 (3).
- [3] Mai, Y. (2018). The Quick Intonation and the Protracted Intonation in the Sentencefinal Position in Cantonese. Current Research in Chinese Linguistics (CrCL), 91(1), 316.
- [4] Wong, W. Y. P., Chan, M. K. M., & Beckman, M. E. (2005). An Autosegmental Metrical Analysis and Prosodic Annotation Conventions for Cantonese. In S.A. Jun (Ed.) *Prosodic Typology: The Phonology of Intonation and Phrasing*. Oxford University Press.
- [5] Sybesma, R., & Li, B. (2007). The dissection and structural mapping of Cantonese sentence final particles. Lingua, 117(10), 17391783.
- [6] **Pan, V. J. (2019).** Architecture of the periphery in Chinese: Cartography and minimalism. London & New York:Routledge.