CHAPTER 5

TAIWANESE-ACCENTED MANDARIN FRICATIVE /f/

This chapter focuses on the analysis of the fricative /f/ in TM (Taiwanese-accented Mandarin), according to the tendencies found in the BG (basic level group) and the AG (advanced level group). The proposed constraints and constraint rankings in the previous chapters are applied to the analysis of /f/, and the different outputs produced by the BG and the AG due to partially ordered constraints are also discussed in this chapter.

Chapter 5 is organized as follows. Section 5.1 presents the fricative /f/ data in the corpus based on the different educational level groups, and shows the distinct operations in the two groups to result in different TM surface forms. Section 5.2 adopts the proposed constraints and constraint rankings to explain the fricative /f/ behaviors in TM, and constraint re-ranking occurs in order to give the different /f/ behaviors a reasonable account. Finally, section 5.3 summarizes the chapter.

5.1 Fricative /f/ in the Corpus

Presented in the present TM corpus, the BG and the AG display distinct phonological behaviors when producing the fricative /f/, which does not exist in the Taiwanese sound inventory. Chart (1) demonstrates the dominant patterns found in the

two groups.

(1)

fricative /f/ in TM			
	predominant tendency	token	percentage
BG	reconfiguration	79	71.2%
AG	preservation	75	66.4%

In the BG, 71.2% of the fricative /f/ in Mandarin are reconfigurated in TM, and in the AG, 66.4% of the fricative /f/ in Mandarin remain unchanged in TM. The different predominant tendencies of the two groups imply different operations of their innate grammar. Also, the corpus suggests that when /f/'s in Mandarin become non-/f/ segments in TM, the non-/f/ segments are either /h/ or /hw/. To find out the distribution of /h/ and /hw/, the roundness of vowels following them are shown as (2) and (3).

(2)

BG			
	roundness of the following vowel	token	percentage
h	**rounded**	**25**	**86.2%**
	unround	4	13.8%
total		29	100.0%
hw	rounded	3	6.0%
	unround	**47**	**94.0%**
total		50	100.0%

Chart (2) shows the case of the BG. When the non-/f/ segment in TM is /h/, 86.2% of the vowels following /h/ are rounded; and when the non-/f/ segment in TM is /hw/, 94% of the vowels following /hw/ are unround.

(3)

AG			
	roundness of the following vowel	token	percentage
h	**rounded**	**3**	**100.0%**
	unround	0	0.0%
total		3	100.0%
hw	rounded	0	0.0%
	unround	**10**	**100.0%**
total		10	100.0%

Chart (3) shows the case of the AG. When the non-/f/ segment in TM is /h/, all the vowels following /h/ are rounded; when the non-/f/ segment in TM is /hw/, all the vowels following /hw/ are unround. The distribution of /h/ and /hw/ in TM could be

generalized from the above data: /h/ usually occurs when preceding a rounded vowel, and /hw/ usually occurs when preceding an unround vowel.

The rest of the chapter would apply Optimality Theory to account for the BG's and the AG's predominant tendencies of the fricative /f/ in TM. It is supposed that the different behaviors of /f/ in the two groups are caused by different constraint rankings. Furthermore, one conjoined constraint *[+lab] &*[+cont] & [+cons] is proposed to deal with the fricative /f/.

5.2 Optimality Theory Analysis

5.2.1 Relevant Constraints and Constraint Ranking

In this section, we introduce a locally conjoined constraint first, and then adopt the constraints and constraint rankings proposed in chapter 4 to analyze the behaviors of /f/ in TM. The locally conjoined constraint is *[+lab]&*[+cont]&[+cons]:

(4) *[+lab]&*[+cont]&*[+cons]: any output having [+lab], [+cont] and [+cons] features simultaneously is not allowed.

This locally conjoined constraint (Kiparsky 1993) contains three markedness

constraints[1] *[+lab], *[+cont] and *[+cons]. Local constraint conjunction enables the three markedness constraints to behave as one. Only, and only if, *[+lab], *[+cont] and *[+cons] are violated, the constraint *[+lab]&*[+cont]&*[+cons] is violated.

The constraint ranking for the BG is in (5):

(5)

MAX-S(ONS), IDENT-V(F), OCP, *[+lab]&*[+cont]&*[+cons] **>>**
IDENT-C(F) **>>**
MAX-S

[+lab]&[+cont]&*[+cons] ranks at the highest level , dominating IDENT-C(F), and MAX-S ranks at the lowest level.

(6) AG's constraint ranking

MAX-S(ONS), IDENT-V(F) **>>**
IDENT-C(F) **>>**
MAX-S **>>**
[+lab]&[+cont]&*[+cons], OCP

In the AG's TM hierarchy for /f/, *[+lab]&*[+cont]&*[+cons] ranks at the lowest level with OCP. MAX-S(ONS) and IDENT-V(F) rank at the highest level, and IDENT-C(F) and MAX-S rank in between.

[1] Ito and Mester (1998) also proposed a local constraint conjunction, which conjoins three markedness constraints *VoiObs, *Coda and *DorsPlos, as a coda condition in German.

5.2.2 Tableau Analysis of /f/ in the BG

As mentioned previously, the Mandarin /f/ in the BG is deleted. In tableau (7), /f/ is followed by an unround vowel.

(7) 'to punish'

/fa/	MAX-S(ONS)	IDENT-V(F)	*[+lab]& *[+cont]& *[+cons]	OCP	IDENT-C(F)	MAX-S
a. fa			*!			
☺ b. hwa					[+phar]	
c. ha					[+phar][-lab]!	
d. wa					[+dor][-cons]!	
e. hu		[+high]!			[+phar][-lab]	
f. a	*!					*

Candidate (a) is ruled out by *[+lab]&*[+cont]&*[+cons]. Candidate (e) is ruled out by IDENT-V(F). Without any onset, candidate (f) is eliminated by MAX-S(ONS). Candidate (b) violates IDENT-C(F) once due to the different pharyngeal feature[2]; candidate (c) and candidate (d) are ruled out by IDENT-C(F). As a result, candidate (b) wins out as the optimal output and /f/ is reconfigurated as /hw/.

[2] It has often been argued that /h/ is placeless (Steriade 1987), but Lombardi (2001) indicates that there are no truly placeless consonants and in fact /h/ has pharyngeal place.

Tableau (8), /f/ is followed by a rounded vowel in the BG's speech.

(8) 'wind'

/foŋ/	MAX-S(ONS)	IDENT-V(F)	*[+lab]& *[+cont]& *[+cons]	OCP	IDENT-C(F)	MAX-S
a. foŋ			*!			
b. hwoŋ				*!	[+phar]	
☺ c. hoŋ					[+phar][-lab]	
d. woŋ				*!	[+dor][-cons]	
e. huŋ		[+high]!			[+phar][-lab]	
f. oŋ	*!					*

Candidate (a) violates the highly-ranked *[+lab]&*[+cont]&*[+cons], so is ruled out. Candidates (b) and (d) are ruled out by the violation of OCP. Candidate (e) has different vowel feature with the input vowel feature and thus is ruled out by IDENT-V(F). Without any onset, candidate (f) is eliminated by MAX-S(ONS). Therefore, candidate (c) is chosen as the optimal output.

The fricative /f/ does not exist in the Taiwanese sound inventory, and the optimal outputs /hwa/ in (7) and /hoŋ/ in (8) show a Taiwanese accent. The partial ranking *[+lab]&*[+cont]&*[+cons], OCP >> IDENT-C(F) prevents the surface of /f/. In tableaux (7) and (8), *[+lab]&*[+cont]&*[+cons], OCP >> IDENT-C(F) in Taiwanese is reflected in the BG of TM.

5.2.3 Tableau Analysis of /f/ in AG

In tableau (9), /f/ is followed by an unround vowel in the AG.

(9) 'to punish'

/fa/	MAX-S(ONS)	IDENT-V(F)	IDENT-C(F)	MAX-S	*[+lab]& *[+cont]& *[+cons]	OCP
☺ a. fa					*	
b. hwa			[+phar]!			
c. ha			[+phar]![-lab]			
d. wa			[+dor]![-cons]			
e. hu		[+high]!	[+phar][-lab]			
f. a	*!			*		

Candidate (e) is ruled out by IDENT-V(F). Without any onset, candidate (f) is eliminated by MAX-S(ONS). Candidate (b) violates IDENT-C(F) once due to the different pharyngeal feature; candidate (c) violates IDENT-C(F) twice due to the different pharyngeal feature and labial feature; candidate (d) violates IDENT-C(F) twice due to the different dorsal feature and consonantal feature. Candidates (b), (c), and (d) are ruled out at the same level. The optimal output is candidate (a) because it only violates the lowest ranked constraint *[+lab]&*[+cont]&*[+cons]. This surface form produced by the AG (/fa/) is identical with the input /fa/.

Tableau (10) handles with /f/ followed by a rounded vowel in the AG.

(10) ‘wind’

/foŋ/	MAX-S(ONS)	IDENT-V(F)	IDENT-C(F)	MAX-S	*[+lab]& *[+cont]& *[+cons]	OCP
☺ a. foŋ					*	
b. hwoŋ			[+phar]!			*
c. hoŋ			[+phar]![-lab]			
d. woŋ			[+dor]![-cons]			*
e. huŋ		[+high]!	[+phar][-lab]			
f. oŋ	*!			*		

Candidate (e) violates IDENT-V(F) and it is ruled out. Candidate (f) is eliminated by MAX-S(ONS). Candidates (b-d) violate IDENT-C(F) and they are ruled out. As a result, candidate (a) is chosen as the optimal output because it only violates the lowest ranked *[+lab]&*[+cont]&*[+cons].

The surfacing of the fricative /f/ in the AG shows no Taiwanese accent and reflects partial ordering of the Mandarin hierarchy, that is, IDENT-C(F) >>*[+lab]&*[+cont]&*[+cons], OCP.

5.3 Summary

The present corpus shows that the BG usually pronounces /f/ as /h/ when

followed by a rounded vowel, or as /hw/ when followed by an unround vowel in TM. On the other hand, the AG preserves /f/ in the TM speech. Within the framework of OT, the different patterns of /f/ in TM could be explained by different constraint rankings. The BG inherits the partial ranking *[+lab]&*[+cont]&*[+cons], OCP >> IDENT-C(F) from Taiwanese in the reconfiguration of /f/, while the AG inherits the partial ranking IDENT-C(F) >> *[+lab]&*[+cont]&*[+cons], OCP from Mandarin in the preservation of /f/ in TM. The partial rankings in TM are illustrated as (11).

(11)