

OPTIMALITY THEORY (Part 6 – conclusion)

Vowel nasalization:

In English, vowels are nasalized when followed by a nasal in the same syllable.

‘ran’ [ɹæ̃n]

This case is more complex than aspiration, because nasality can occur in connection with consonants as well (aspiration could not occur with vowels).

The vowel in *ran* [ɹæ̃n] must be nasalized, while the vowel in *rat* [ɹæt] cannot be nasalized.

Nasal Constraint: A vowel before a nasal consonant in the same syllable must be nasalized.

Tableau: Nasal Constraint

/ɹæ̃n/	Nasal
☞ [ɹæ̃n]	
/ɹæ̃n/	*!

As with aspiration, to prevent nasal from showing up in other contexts, Nasal must outrank a constraint that rules out nasal elsewhere.

NoNasal Constraint: Nothing is nasalized

Tableau: Interaction between Nasal and NoNasal Constraints

/ɹæt/	Nasal	NoNasal
☞ [ɹæt]		
[ɹæ̃t]		*!

Tableau: Interaction between Nasal and NoNasal Constraints

/ɹæ̃n/	Nasal	NoNasal
[ɹæ̃n]	*!	
☞ [ɹæ̃n]		*

This arrangement guarantees that specifying inputs as nasal vowels produces the same result.

Tableau: Nasal vowel in the input: [ɪæ̃t /

	/ɪæ̃t /	Nasal	NoNasal
☞	[ɪæt]		
	[ɪæ̃t]		*!

Tableau: Nasal vowel in the input: [ɪæ̃n]

	/ɪæ̃n /	Nasal	NoNasal
	[ɪæn]	*!	
☞	[ɪæ̃n]		*

In order to make sure that Nasal is satisfied by adding nasality via GEN as opposed to *some other changes*, the relevant Faith constraints must outrank Nasal.

Thus, we need here a faithfulness constraint that will prevent Nasal from being satisfied by changing a vowel into a consonant, or by changing a nasal consonant into something else.

Faith (Vowel) Constraint forces faithfulness to vowelhood.

Tableau: Ruling out [ɪkt]

	/ɪæn /	F(Vowel)	Nasal	NoNasal
☞	[ɪæ̃n]			*
	[ɪæn]		*!	
	[ɪkt]	*!		

Faith (MOA) constraint will prevent consonants from becoming different in the output in terms of MOA.

Tableau: Ruling out [ɪæ̃v]

	/ɪæn /	F(MOA)	Nasal	NoNasal
☞	[ɪæ̃n]			*
	[ɪæn]		*!	
	[ɪæ̃v]	*!		

Complication: How can nasality surface on consonants given the NoNasal constraint?

Why does not /not/ [nat] surface like *[dat]?

Recall: Nasal must outrank NoNasal, so that nasality can be inserted in the appropriate contexts.

Further, Faith (MOA) must outrank Nasal, so that nasal consonants do not surface as orals.



This ranking follows from the Principle of Transitivity:

Transitivity of ranking:

If a constraint α outranks constraint β and constraint β outranks constraint γ , then α outranks γ .

How does having Faith (MOA) outrank NoNasal avoid the [dat] problem?

Tableau: Avoiding the [dat] problem

/nat/	F (MOA)	NoNasal
☞ [nat]		* 
[dat]	*!	

There is another way a violation of NoNasal could be avoided that would not be ruled out by F (MOA): *the consonant could simply be absent from the output.*

Tableau: Avoiding the [at] problem

/nat/	F (MOA)	NoNasal
[nat]		*!
[at]		

This problem could be avoided if we require that the number of consonants be constant in input/output pairings:

Faith (Segments) Constraint: The output is identical to the input with respect to the number of segments.

Summary of vowel nasalization:

- there are two central constraints: Nasal and NoNasal
 - Nasal forces vowels to be nasalized before a nasal consonant in the same syllable
 - NoNasal limits the distribution of nasality in the output
- The Nasal constraint is outranked by the Faith (MOA) so that nasality is satisfied by a difference in nasality for the vowel as opposed to the following consonant.
- Faith (MOA) thus also outranks the NoNasal constraint by transitivity, which prevents the [dat] problem.
- Faith (Segments) will ensure that nasal consonants are not deleted.