Long-distance vowel-consonant agreement in Harari

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1 Introduction

Consider the phonological interactions between consonants and vowels (1).

(1) Canadian French

a. /t̲y/ → [**t^{s}y**] 'you(sg)'

b. /t̲əny/ → [**təny**]/*[**t^{s}əny**] 'held'

- (1-a) /t/ is affricated
- (1-b) /t/ is NOT affricated
- Assimilation tends to be LOCAL in many languages. i.e. it usually happens between adjacent segments.
- If affrication of /t/ in (1-b) had been possible, it could have been an instance of LONG-DISTANCE... such as (2).

(2) Applecross Scottish Gaelic
/mā̲har/ → [**mãñh̃ãr̃**] 'you(sg)'

- Nasalization on stressed /a/ spreads to ALL following segments.
- Unlike (2), there are instances where there may be what looks like feature-spreading but intervening/intermediate segments seem to remain unaffected or remain neutral. This is what obtains in *Harari palatalization* e.g.(3).

(3) Harari (**NOTE: 2SG.MASC → 2SG.FEM**)

a. /libas̲/ → [**libaʃi**] 'dress'
b. /kit̲ab/ → [**kitʃabi**] 'write'
c. /s̲ibər/ → [**ʃibəri**] 'break'

- /t/ in (3-b) and /s/ in (3-c) seem to have been impacted by the features of the suffix **-i**.
- This **-i** (=2SG.FEM) triggering palatalization affects CORONALS except /r/.
- Note that in (3), /t/ is 2 segments away and /s/ is 4 segments away.
- (1), (2) and (3-a) have been analysed as feature spreading by means of locality.
- Phenomena like (3-b-c) have also been analyzed by some scholars as CONSONANT HARMONY (through feature spreading). The intervening segments are claimed to covertly acquire the spreading feature.
- But Rose's (2004) proposal is that, (3) is an instance of CONSONANT FEATURE AGREEMENT (not Feature Spreading).

Goal: To discuss the evidence for Rose's argument and how she derives the various paradigms.

2 The data

(4) The following are the coronal segments which undergo palatalization
/t t' s z d n l/ → [**tʃ tʃ' ʃ ʒ dʒ ɲ j**]

- Non-coronal consonants are exempt.
- Only **-i** [2SG.FEM] triggers palatalization. Epenthetic and lexical front **[i]** do not trigger palatalization (5).

(5) a. [-i] in 2SG.MASC in Simple imperfect **t̲isabr̲i̲** 'you[2.MASC] break'
b. [-i] in question affix *-in-* in **j̲i̲-sadb-i̲n-al** 'does he insult?

- Palatalization may affect different segments in different positions within a string of segments.

(6) Final position
a. /zima**d̲**/ → [**zimadʒ-i**] 'drag!'
b. /difa**n̲**/ → [**difaɲ-i**] 'block container!'
c. /kifa**l̲**/ → [**kifaj**] 'pay!'

- Note that though a **l-i** string is generally fine, (6-c) does not show [**j-i**] sequence due to some other constraint.

(7) Non-final position
a. /ni**s̲**aʔ/ → [**niʃiʔ**] 'take(away)!'
b. /hi**n̲**ak'/ → [**hiɲak'-i**] 'strangle!'
c. /**s̲**ixar/ → [**ʃixar-i**] 'be drunk!'

- (7-a-b) - Penult consonants; (7-c) - Initial consonant.

2.1 Obstruents and Sonorants Palatalization

- If there are two palatalizable coronals, the OBSRUENT will be palatalized in addition to a rightmost coronal SONORANT i.e. /n/ or /l/ (8-a).
- If the first consonant is an obstruent and the medial or final consonant is a sonorant, either both sonorant and the obstruent will be palatalized, or for some speakers, only the sonorant will (8-b).
- If the coronals occur in a Sonorant-Obstruent order, only the obstruent will readily palatize (8-c).

(8) a. /xi**d̲**a**n̲**/ → [**xidʒaɲ-i**] or (xidaɲ-i) 'cover!'
b. /a-**d̲**agni → [**a-dagɲ'-i**] or (a-dʒagɲ-i) 'hit!'
c. /di**n̲**ab**t̲**'i/ → [**dinatʃi**] /*diɲatʃ-i 'be frightened'

- BUT sonorants at initial position do not palatalize even when followed by palatalizable obstruents.

(9) /nik'ah/ → [**nik'ahi**] 'be awake!'

- Consontants in reduplicated roots may also be affected by palatalization.

(10) Reduplicated forms
a. $C_1C_2C_2$ /si**d̲**a**d̲**/ → [**sidʒadʒ-i**] 'chase away!'

b. $C_1C_2C_1C_2$ /lik'a͟lk'i/ → [**lik'ajk'-i**] 'paint!'
c. $C_1C_2C_2C_3$ /ki͟ta͟tfi/ → [**kitʃatʃfi**] 'harsh again and again!'

- If there is no consonant in the verb root which can be palatalized, only **-i** can tell the difference between 1SG.MASC and 1SG.FEM.

(11) /birar/ → [**birar-i**] 'fly!'

- 1SG.FEM. suffix may also cause some prefixes to be palatalized e.g. imperfective **ti-** (12-a), and negative imperative **a-t-** (12-b). (Note: Final /-i/ in 2SG.MASC in (12-a) is epenthetic.

(12) a. /t͟i-sag͟di/ → [**kisagdʒ-i**] or [**tʃisagdʒ-i**] 'you prostrate'
b. /a-t͟-wi͟dak'/ → [**a-tʃ-idʒak'i**] 'don't fall'

- Palatalization of prefixes is more common when there is no palatalizable consonant in the root (13-a) or if the only coronal in the root is a sonorant (13-b).

(13) a. /t͟i-barri/ → [**tʃi-barri**] 'you fly'
b. /a-t͟-hinak'i → [**a-tʃ-hinak'i**] 'don't strangle'

2.2 Summary of Harari palatalization data

1. Only coronals (except /r/) are palatalized.
2. Obstruents are preferred targets.
3. Sonorants i.e. /n/ and /l/ are palatized only when a preceding obstruent is palatalized or if there is no coronal obstruent in root/stem.

2.3 Research questions

1. What is the trigger for the palatalization patterns observed so far, is it the suffix **-i** or the morphological features of 2SG.FEM?
2. Why are coronal obstruents preferred over sonorant ones?
3. Is double palatalization triggered by the rightward palatalized segment or by **-i**?

3 Main arguments against Local/Spreading analyses

- Potential triggers are skipped
- There seem to be no blocking effect
- Even when "Target" notion is abandoned for the Allignment of spreading feature within a domain edge, Harari defies this by favouring palatalization of coronal obstruent over coronal sonorants.
- The Harari phenomenon has a lot in common with Consonant Agreement/Harmony elsewhere which have been analyzed as FEATURAL AGREEMENT not Feature Spreading.

4 Previous analyses

4.1 Palatalization as *grammatically conditioned*

- Main source of distinction between 2SG.MASC and 2SG.FEM

(14) /tikafti/ → [**tikaftʃi**] 'you open'

- But note that final /-i/ in (14) is epenthentic, to avoid consonant cluster.
- In some instances, /-i/ triggered palatalization does not imply 2SG.FEM. Thus it not just palatalization but also *suffixation* of /-i/ that distinguish the two genders.

4.2 Palatalization as *feature spreading*

4.2.1 Non-blocking of feature spread

- If feature-speading proceed locally, only adjacent segments are expected to be palatalized.
- There is supposed to be blocking effects by either feature-(in/)compatible segments.
- But /ʃ/ does not block further spreading of [–back] from /-i/ to /t/ in (15).

(15) a. /a-tbiʃak'i/ → [**a-tʃ-biʃak'i**] 'don't wet!'
b. /a-tbiʃak'i/ → *[**a-t-biʃak'i**] 'don't wet!'

- Even if it is rather a case of *Consonant Harmony* i.e. a [–ANT] feature that is spreading, still /ʃ/ should block a further spread.
- Also, it seems some segments e.g. /l/ in (16), may be skipped.

(16) /a-silab/ → [**ʃilabi**] or [ʃijabi] 'castrate!'

- There is *opacity* in (16) and (15); it is not obvious how intervening segments are skipped or why they do not block the spreading.

4.2.2 Preference of Obstruents over Sonorants

- Recall the interesting cases of double palatalization with $\text{OBSTR}_{\text{PAL}}$>$\text{SON}_{\text{PAL}}$ **but** SON>$\text{OBSTR}_{\text{PAL}}$

(17) a. /fitan/ → [**fitʃ'ŋ-i**] 'hurry!'
b. /dinabt'i/ → [**dinabtʃ'-i**] 'be frightened!'

- In a rule-based account, palatalization of the obstruent should take place first.

(18)

UR	/dinabt'-i/	/fit'an-i/
Rule1-OBST	dinabtʃ'-i	fitʃ'an-i
Rule2-SON	BLOCK	fitʃ'aŋ-i
SR	**dinabtʃ'-i**	**fitʃ'aŋ-i**

- According to (18), /tʃ/ must block spreading to /n/ but the data suggests otherwise; palato-alveolar consonants do not block spreading.

- An OT-account may equally predict the wrong winner (19).
- Constraints:

  ALIGN[–BACK] : Align [–back] to right edge of stem

  *ɲ : Do not palatalize coronal sonorants

  IDENT-IO] : Do not alter any segment

(19)

/fit'an-i/	ALIGN[–BACK]	IDENT-IO	*ɲ
☞ a. fit'aɲ-i		*	*
b. fitʃ'an-i	!*	*!	
c. **fitʃ'aɲ-i**		!**	*

5 Alternative analysis

5.1 Palatalization as consonant agreement

- Harari palatalization is comparable to other cases of consonant harmony(AGREEMENT) but not through feature spreading.
- CONSONANT AGREEMENT: Two or more consonants in a word share phonological features.
- Two main characteristics that set this kind of long-distance phonological interaction apart from others are:

  Only a small set of consonants are involved (in this case only CORONALS)

  Intervening segments remain neutrral.
- Phonological interaction suggests a tighter bond the *stem* of the word and the *affix* that triggers the palatalization.
- Constraints:

  ∃SA-IDENT (Stem-Affix identity):

  Let x be an affix and y be a stem to which x attaches. If segment α in x is [+F], then there is some segment β in y which in the input is [–F] but will have a [+F] output.

  Only requires consonants and -i to match in terms [+PAL]

  Thus: Let x be an affix and y be a stem to which x attaches. If there is a vowel α in x is [+PAL], then there is consonant β in y which in the input is [–PAL] but will have a [+PAL] output.

  ∃SAICO:
  Let x be an affix and y be a stem to which x attaches. If segment α in x is [+PAL], then there is some coronal obstruent β in y which in the input is [–PAL] but will have a [+PAL] output.

  PROXIMITY : Correspondent segments can be separated by no more than one segment of a different major class (C/V)

  IDENT-IO : Correnspondent segments in input and output must be identical with respect to feature[PAL]
- CONTRAIINT RANKING:

  ∃SA-IDENT>>∃SAICO>>PROXIMITY>>IDENT-IO

5.2 Accounting for the data

(20) a. /fit̪an̪/ → [**fitʃʻɲ-i**] 'hurry!' (See (21))
b. /din̪abt̪'i/ → [**dinabtʃʻ-i**] 'be frightened!' (See (22))

(21)

/fit'an-i/	∃SA-IDENT	∃SAICO	PROXIMITY	IDENT-IO
a. fit'ani	*!	*		
b. fitʃ'ani		*!	**!	*
c. fit'aɲi		*!		*
☞ d. fitʃ'aɲi			*	**

(22)

/dinabt'-i/	∃SA-IDENT	∃SAICO	PROXIMITY	IDENT-IO
a. dinabt'i	*!	*		
b. diɲabt 'i		*!	**	*
c. diɲabʃt 'i		**!		**
☞ d. dinabtʃ'i				*

6 Conclusion

- The non-local nature of long-distance palatalization in Harari is better accounted for by assuming constraints which require agreement between the triggers and targets of the process.
- This approach also adequately addresses the problem of double palatalization (of obstruents and sonorants) which is a problem for feature-spreading analyses.

References

Rose, Sharon (2004). Long-distance vowel-consonant agreement in Harari . *Journal of African languages and linguistics* 25(1), 41-87.