

Notes on Complete Consonantal Assimilations

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0. Introduction

This paper is one of a number of studies within the conceptual framework of natural phonology (Stampe 1972b), according to which phonological processes are of two kinds, context-free and context-sensitive. Studies have shown that context-free changes in simple vowels and diphthongs are to be explained by the character of the sounds themselves (Miller 1972, Stampe 1972a). Recent studies in context-sensitive processes--syncope (Zwicky 1972b), nasal assimilation (Zuckerman 1972), palatalization (Weeld 1972), and vowel nasalization (Schourup 1972a, 1972b)--have demonstrated that they are also to be explained largely by the function of the processes themselves and by the character of the sounds which are affected by them. Much of this work has been concerned with the notion of hierarchy of application. The purpose of this paper (and the larger work from which it is excerpted) is to investigate the operation of complete consonantal assimilations within the same theoretical framework as the studies mentioned above.

1. Complete assimilation: a definition

The designation complete assimilation has been used in a variety of ways. I use the term to mean that the process of assimilation results in the complete identity of the two sounds involved, i.e. $C_1C_2 \rightarrow C_1C_1$ (complete progressive assimilation), $C_1C_2 \rightarrow C_2C_2$ (complete regressive assimilation), or $C_1C_2 \rightarrow C_3C_3$ (complete coalescence). Some writers use complete assimilation to describe the assimilation of one feature, such as complete assimilation of position. For such single-feature processes I use locutions like complete or total assimilation of manner or position. The simple term complete assimilation will mean total assimilation of all features.

2. Sources of data

The data on which this paper is based come from several sources: casual speech (optional sandhi phenomena triggered by a casual speech style);¹ regular, non-optional external sandhi; internal assimilations resulting from inflectional and derivational processes; and historical developments.

3. English casual speech assimilations

In two notes C-J. Bailey (1969, 1970) has offered evidence that consonant clusters of apicals followed by nonapicals appear to be marked sequences and for this reason are unstable, showing a tendency to become unmarked. Such marked clusters can be eliminated in a variety of ways. Bailey cites unmarking by metathesis in the case of ancient Greek and by assimilation in contemporary English. It is the latter case that is of interest here, because the assimilations which do occur--and, perhaps more important, those which do not--offer important insights into the nature of complete consonantal assimilations.

Bailey (1970) cites the occurrence of the following assimilations in rapid casual speech: rihɹp poor, gɔɔb-bye, gɔɔb boy, leab balloon, rihk corner, bag guess, for right poor, good-bye, lead balloon, right corner, bad guess, respectively.² However, such forms as keet track (for keep track) and bat track (for back track) do not occur. These forms are sufficient for Bailey to make his point about the marked nature of the apical plus nonapical cluster. More information of theoretical interest and importance can be obtained from this tendency toward assimilation in rapid speech: note that all the forms cited by Bailey involve clusters in which the two segments share all features except the position feature apical. Thus t + p, d + b, t + k, and d + g assimilate completely to pp, bb, kk, and gg respectively. If, however, clusters of apicals plus nonapicals which are not identical in all other respects are considered, no such complete assimilation occurs. Thus, right bill, bad police, right goal, and bad kid become rihɹp bill, bab police, rihk goal and bag kid. These facts have been noted by Gimson (1960, 1972).

An apical sibilant will assimilate to the position of a following palatal but not to labials or velars (Bailey and Gimson). It is important to note that any change in the position of the sibilants beyond the change of apical to palatal would require changing more than just the position of articulation; the distinctive sibilance could not be maintained.

The assimilation of an apical n to the position of a following nonapical segment is an instance of a much more pervasive tendency of a nasal to assimilate to the position of a following segment. Moreover, of all nasals, the apical nasal n is the most unstable with respect to position, a fact which seems to support Bailey's claim about markedness.³

The apical lateral does not assimilate at all in casual speech. This is not surprising in view of the examples cited above. The assimilatory process under discussion is one which affects the feature makeup of a segment only minimally. In order for a lateral to change position (other than by a light-dark alternation), it must undergo a change not only in position, but in manner features as well.

These observations about one kind of putative complete assimilation are offered as supporting evidence for a more general principle which claims that complete assimilations normally occur only when the segments

involved are already very similar (indeed the casual speech assimilation I have been discussing is really a total assimilation of position affecting apical segments and is an example of a complete assimilation in the more general sense only accidentally in the small set of instances where the segments involved are already nearly identical). Support for this principle can be found in a number of other languages.

4. Sandhi phenomena in Arabic and Yakut

These two unrelated languages show assimilatory phenomena that lend support to the claims made in the preceding paragraph and also offer a further insight into the operation of phonological processes. The dialects of Arabic spoken in Syria (Cowell 1964), Morocco (Harrell 1972), Iraq (Erwin 1963) and the Safi:di dialect of Egypt (Khalafalla 1969) show complete assimilation of the l of the definite article *fil-* when that article is prefixed to a noun which has an initial dental, alveolar, or palatal consonant. Elsewhere the l remains unassimilated. For example, from Iraqi (Erwin, 214-5):⁴

a. Unassimilated

ʔakil	'food'	l-ʔakil	'the food'
beet	'house'	l-beet	'the house'
fikra	'idea'	l-fikra	'the idea'
qisim	'part'	l-qisim	'the part'
kaatib	'clerk'	l-kaatib	'the clerk'

(Similarly words with initial ʕ, ʔ, ʔ, ʔ, m, h, w, y, p, ʕ.)

b. Assimilated

timman	'rice'	t-timman	'the rice'
ʕoob	'shirt'	ʕ-ʕoob	'the shirt'
junta	'suitcase'	j-junta	'the suitcase'
diinaar	'dinar'	d-dinar	'the dinar'
ʕibbaan	'flies'	ʕ-ʕibbaan	'the flies'
rukkaab	'passengers'	r-rukkaab	'the passengers'
zibid	'brother'	z-zibid	'the brother'
ʕana	'year'	ʕ-ʕana	'the year'
sahar	'month'	s-sahar	'the month'
ʕuura	'picture'	ʕ-ʕuura	'the picture'
ʕaabuʔ	'officer'	ʕ-ʕaabuʔ	'the officer'
ʔooba	'ball'	ʔ-ʔooba	'the ball'
leele	'night'	l-leele	'the night'
naar	'fire'	n-naar	'the fire'
caakuuc	'hammer'	c-caakuuc	'the hammer'

In the colloquial Arabic spoken in Cairo the assimilation extends optionally to initial k and ʕ (Mitchell, 47n; Abdoul-Petouh 1969).

The assimilations in all dialects are complete. Of particular importance, however, is the fact that in each dialect, including Cairo Arabic, the assimilations take place between similar sounds and extend in the case of Cairo Arabic hierarchically. Thus we would not expect ?il-k to assimilate to ?ik-k unless ?il-t assimilated to ?it-t also. It is of further interest that the extension of the assimilatory process to include velar stops is optional, showing the customary tendency of a process to operate optionally at first as it extends its domain.

In Yakut, a Turkic language of Siberia, nouns form plurals by a process of suffixation (Krueger 1963, 74-5). The plural suffix is -lAR (where A represents a vowel subject to regular harmonic alternations which are of no significance to the point in question). The initial segment of this plural ending remains l only when suffixed to a stem ending in a vowel, a diphthong, or l itself. When suffixed to other stems the l of the plural regularly assimilates in the following way:

- a. l → t/C__ where C is a voiceless obstruent; there are no stem-final voiced obstruents

at	'horse'	attar	'horses'
balik	'fish'	baliktar	'fishes'
tuox	'what thing'	tuoxtar	'what things'
iskaap	'cabinet'	iskaaptar	'cabinets'
muos	'horn'	muostas	'horns'

- b. l → d/C__ where C is r or y

ubay	'elder brother'	ubaydar	'elder brothers'
atiir	'stallion'	atiirdar	'stallions'

- c. l → n/C__ where C is a nasal

suoryan	'blanket'	suoryannar	'blankets'
xatiŋ	'birch'	xatiŋnar	'birches'
olom	'ford'	olomnor	'fords'

Notice that the l assimilates with respect to a single feature in each case. In no instance is the alveolar point of articulation lost. As was the case in the English examples the only complete assimilations are in those cases where the neighboring segment was already minimally different. Elsewhere the assimilation is partial.

Both the Arabic and the Yakut examples show one feature that is of further interest, in that they offer evidence that not all assimilations are determined by purely phonological conditions. In both cases the segment which is assimilated is a part of a grammatical affix. The weakness of the l which allows it to be assimilated is determined in both languages by facts having to do with grammar. This is particularly easy to see in the case of Arabic, where there are many

clusters exactly like those treated above but which do not assimilate. These facts are of course not surprising, as nonphonological conditions have been seen to constrain many sorts of phonological processes (see Zwicky 1970, 1972a).

However, once the assimilation process has been triggered by (whatever) grammatical factors, it obeys constraints that are purely phonological, e.g. the constraints involving minimal difference and the hierarchical extensions of the process. Such evidence as that just cited should serve, however, as a warning to use extreme caution when attempting to define notions of weakness and strength on purely phonological grounds, as is done, for example, by Grammont.

5. Latin assimilations in derivations

I now consider briefly the phonological behavior of the Latin prefixes ad-, con-, and ab- (Väänänen 1963, 62-8 for Vulgar Latin; Buck and Hale 1966, 24-5 for the classical language). Con- shows regular assimilation of the n to the position of a following segment. Before l and r, the n tends to assimilate completely, as in cor-rumpō, cor-ripīō, and col-ligō. However, there are a number of combinations of con + liquid, especially con + l, where the assimilation does not take place. Note that in the assimilation of con + l, r to coll and corr, the assimilation is to the manner of a more sonorous segment articulated at the same point.

The d of the prefix ad- shows a tendency to assimilate to nearly every following consonant; the tendency seems strongest when the following consonant is similar in position or manner. Thus, particularly in Vulgar Latin, examples of ad + t, r, n, l, s, k, g becoming att-, arr-, ann-, all-, ass-, akk-, and agg- are common, while the assimilation of ad-m to amm- is less regular (ad + p + app seems quite regular).⁵

The Latin prefix ab- shows no such ready assimilability. Indeed where clusters would arise that might be difficult, the prefix takes the form abs or ā.

There are many details of the assimilations (or lack of them) that await a further, much more detailed analysis of the data from Vulgar Latin and the development of the Romance dialects, especially Italian; I expect corroborative evidence for the hierarchical nature of constraints on complete assimilations.

6. Finnish consonant gradation

A well-known aspect of Finnish phonology is the alternation of weak and strong stems known as gradation, which affects syllable-initial stops in closed syllables. Of particular interest are cases where gradation involves a complete assimilation of stops with preceding nasals or liquids; assimilation is complete only when certain phonological conditions are met (see Harms 1964, Karttunen 1970).

Finnish has underlying consonant clusters of the following kind: mp, nt, nk, rp, rt, rk, lp, lt, lk. One regular (and obligatory) process in the language is the assimilation of n to the position of a following velar, giving a derived cluster pk. When the clusters meet

the conditions for gradation (e.g. in nouns in the genitive singular) the following assimilations result:

mp → mm
 nt → nn
 ŋk → ŋŋ (spelled ng).

lt → ll
 rt → rr

But:

lp → lv
 lk → l
 rp → rv
 rk → r

These Finnish examples strikingly illustrate the phenomenon I have been discussing. The assimilations involving nasals are complete in all features. Note that all examples of clusters with nasals involve a nasal and a homorganic stop, a fact assured by the operation of the nasal assimilation rule. When the cluster involves a liquid (r or l) plus a stop, only the homorganic clusters assimilate.

7. Conclusion

I have tried here to make the following points:

- a. Complete assimilations normally affect sounds that are already very similar.
- b. If relatively different sounds assimilate completely, so will less different sounds--that is to say, assimilations operate hierarchially.
- c. Nonphonological conditions can play a role in the triggering of assimilatory processes.

These claims, though not implausible, do not appear to have been made in the literature; it is of value to make them explicit if only as a prelude to the really important task of specifying the conditions and constraints on assimilatory processes, in particular the hierarchies of application.

Footnotes

1. For a discussion of casual and fast speech phenomena and the theoretical significance of these notions see Zwicky (1972a) and Dressler (1972).
2. I use Bailey's nonce spellings.
3. For a thorough discussion of nasal assimilations and the hierarchical nature of application of such processes see Zuckerman (1972).
4. Note that the Iraqi definite article is l rather than the longer form cited above, which is from the classical language.
5. I have been purposely vague about the hierarchies of these assimilations. The evidence is not clear and is often contradictory (Väänänen 1963, 63). Despite this the point concerning the differences between con- and ad- on the one hand and ab- on the other is still valid.

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