Rule Ordering

from Morris Halle, and G. N. Clements (1983) *Problem Book in Phonology: A Workbook for Introductory Courses in Linguistics and Modern Phonology*. Cambridge, Mass: MIT Press.

In the "Morphophonemics" chapter of his *Klamath Grammar* (1964, University of California), M. A. R. Barker lists a number of rules that account for the phonetic shape of Klamath words. Among them are (A)–(E).

Note: The change of /y/ to [i] in the form given in B is accounted for by a separate rule not at issue here.

A.	nl → ll		
	/honli:na/	[holli:na]	'flies along the bank'
B.	n̥l → lh		
	/honly/	[holhi]	'flies into'
C.	nl' → lʔ		
	/honl'a:l'a/	[holʔa:l'a]	'flies into the fire'
D.	l̥l → lh		
	/pa:l̥a/	[pa:lha]	'dries on'
E.	ll' → lʔ		
	/yalyall'i/	[yalyalʔi]	'clear'

In his grammar, Barker makes the following assumptions:

> Phonological rules are unordered. All rules apply simultaneously to underlying representations to derive surface representations.

Show how Barker's set of rules can be simplified by abandoning these assumptions and assuming that phonological rules apply in order, each rule applying to the output of the preceding rule in the list of ordered rules, creating a step-by-step **derivation**. Write the rules sufficient to describe the above data, and state the order in which they apply.

Klamath is a nearly extinct Penutian language, (formerly) spoken in south central Oregon, around Klamath Lake.