

Stress Clash Revisited

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Cho, Hyea-Sung. 2002. Stress Clash Revisited. *The Linguistic Association of Korea Journal*, 10(1), 101-115. This paper focuses on stress clash in English. The claim made here is that the previous definition of stress clash is not so sophisticated and relativized as to characterize both destressing and stress shift in English in a uniform way. So, I propose that clash be divided into two types, clash of adjacent stress and clash of degrees of stress, and that only the former is one of the most disfavored structures in both cases. As a result, such specific instantiations of general clash avoidance principle as *Clash-Head constraints do not overgenerate in the way that Liberman and Prince's (1977) clash-based analysis does. Additionally, I claim that Hayes's (1984) argument against clash is no longer valid, with stress clash-based constraints. Therefore, it is implied that in case eurhythm is formulated as a violable constraint prohibiting stressed syllable adjacency, interaction of *Clash-Head constraints with faithfulness constraints will allow us to account for complicated English stress shift adequately.

Key words: stress degree clash, eurhythm, destressing rules, stress shift, rhythm rule, early accent tendency

1. Introduction

Since Liberman and Prince (1977, hereafter LP) introduced the notion of stress clash to capture eurhythm, it has been considered empirically well-motivated in accounting for exceptional word stress patterns and, further, phrasal rhythmical variations in English. Prince (1983), however, doubts that the definition of stress clash drawn by LP may be too loose to treat complicated rhythmic adjustments neatly. Hayes (1984) argues that stress clash is inadequate since, in particular, there is no difference

2. Distinction of Stress Clash

Traditionally LP and others define the stress clash like the configuration in (2), where strong stresses are not separated by a weaker stress.

(2) * × ×
 × ×

More specifically, Hyde (2001) points out that the grid configuration includes two kinds of clash, namely, clash of adjacent stress and clash of degrees of stress. Configurations of both clashes are illustrated in (3), respectively.

(3) a. clash of adjacent stress	b. clash of degrees of stress	
	× ×	word heads
× ×	× ×	foot heads
× × × ×	× × × × ×	baseline

In (3a), stresses on adjacent syllables are said to clash each other. I refer to the clash as *stress clash* here. Meanwhile in (3b), there is a third height of grid column. With this degree of prominence, there is no intervening entry one level down, and the degrees of stress are too nearly adjacent. I refer to this type of clash as *stress degree clash*.¹⁾

The distinction of clash allows to accommodate both Hayes's (1984) and Nespor's (1990) claims although they appear incompatible with each other. Let us return to the grid configurations given in (1). Here we note that Hayes obviously rejects the very use of stress degree clash as a means of dealing with rhythmic adjustment, as in *thirtéen m é n*, since the grid configuration in (1a), with stress degree clash, is not

1) Sometimes clash of degrees of stress can properly include clash of adjacent stress. We treat this clash as stress clash.

treated differently from the eurhythmic counterpart in (1b). In contrast, Nespor argues for clash of adjacent stress, rather than for both clash types, in English. What is strictly banned by the existing clash definition is the clash of adjacent stress, as illustrated in (4). In (4) *p* represents a syllabic peak.

(4) Minimal clash definition in American English (Nespor, 1990)²⁾

×	×
×	×
×	(×) ×
p	p

Nespor indicates that the most ill-formed configurations in English are ones with adjacent stressed syllable. If we assume two clash types, it is straightforwardly followed that Hayes' argument against clash is too strong since it aims at nullifying just a kind of stress clash, the stress degree clash.

3. Clash Resolution

The representative ways to repair adjacency of stress in English include various destressing rules and English Rhythm Rule. In this section, I present some data to convince that stress clash has some relation with the headship of the constituent where clash is found and, thereby, the occurring position of clash is strictly limited. In the course of discussion, I demonstrate that restricted use of clash is necessary.

3.1. Stress Clash

3.1.1. A Rule-Based Analysis: Destressing Rules

²⁾ When no grid position is assigned to word-final short vowel, the position is regarded as extrarhythmic, which is indicated with parentheses.

In the literature adjacency of stressed syllables has been treated with destressing rules in English. Hayes (1981) postulates three destressing rules in order to account for supposed exceptions to his foot construction rules. Each destressing rule has its own application domain.

(5) Word groups attracting destressing rules (Hayes, 1981)

a. Group subject to Prestress Destressing

banána	América	terráfic	cerámic
lagóon	crevásse	Connéticut	atóne

b. Group subject to Poststress Destressing

àbrac ad ábra	Tàtam ag óuchi	Kàlam az óo	Winnepesáukee
Lòllap al óoza	Kìlimanzáro	Gállip ol ís	pàrapp h ernália

c. Group subject to Sonorant Destressing

sèr end ípy	sì mult áneous	tàr ant élla	Pènnsy lv ánia
gòrg onz óla	Sàn Franc isco	Hótt ent òt	dáven pòr t

Note that the three different destressing rules apply independently although they conspire to get well-formed outputs, that is, absence of pretonic stress. Obviously, the rule-analysis fails not only to characterize clashing environments properly but also to capture generality. Hayes (1995) mentions that English destressing rules always appear to involve the removal of one stress on a syllable adjacent to another stress and that they conspire to resolve clash. A general schema for Destressing in Clash is shown as follows.

(6) Destressing in Clash (Hayes, 1995, p. 37)

- a. $\times \rightarrow \emptyset / \text{_____} \times$
 b. $\times \rightarrow \emptyset / \times \text{_____}$

Although Destressing in Clash in (6) can capture generality and has more trimmed environments than its former counterparts, however, it still seems unsatisfactory because its environments are not collapsed into a single one. Nevertheless, Hayes' analysis suggests an important fact that stress clash constitutes the extreme edge on a continuum of

dysrhythmy and tendency toward stress clash avoidance is at work in the word stress assignment of English.

3.1.2. An Optimality-theoretic Analysis: *Clash-Head (PWd)

Under Optimality Theory (Prince & Smolensky, 1993) stress clash would be accounted for by the interaction of a limited number of general constraints. Pater (2000) analyzes that the data given in (5a, b) can be derived from the interaction of higher-ranked FtBin with Parse- σ . He demonstrates that the constraint ranking also accounts for the words which tolerate adjacent stresses, given in (7).

- (7) a. bàndána Nàntúcket pòntóon càntéén cèntúríon bàctéria
 b. Hàlicàrnássus ròdomòntáde àpothègmátic ànimàdvèrsion

In (8) the tableaux for *banana* and *Tatamagouchi* show that a light syllable surfaces as stressless in pretonic position, resolving stress clash due to the dominance of FtBin, whereas the tableaux for *canteen* and *Halicarnassus* exhibit that a heavy syllable bears its stress in spite of stress clash in the pretonic position.

- (8) FtBin >> Parse- σ

- a. banána

	banana	FtBin	Parse- σ
☞	i. ba[nána]		*
	ii. [bà][nána]	*!	

- b. càntéén

	canteen	FtBin	Parse- σ
	i. can[téén]		*!
☞	ii. [càn][téén]		

c. Tàtamagóuchi

Tatamagouchi	FtBin	Parse- σ
i. [Tàta]ma[góu]chi		**
ii. [Tàta][mà][góu]chi	*!	*

d. Hàlicàrnássus

Halicarnassus	FtBin	Parse- σ
i. [Hàli]car[nássus]		*!
ii. [Hàli][càr][nássus]		

An optimality-theoretic analysis does not need to assume a constraint against adjacent stresses since clash avoidance effects result from the interaction of ranked constraints on foot parsing.

However, cases in (5c) remain unexplained. They have medial heavy syllables closed by a sonorant and always lack stress on the syllables in pretonic positions. Pater (2000) sees the circumstances as clashing and employs Stress Well environment of Halle and Vergnaud (1987). He posits a constraint that disfavors stress on the pretonic syllable.

(9) *Clash-Head (PWd) (Pater, 2000, p. 246)

No stressed syllable may be adjacent to the head syllable of the Prosodic Word.³⁾

This constraint aims to rule out stress on a syllable adjacent to main stress regardless of the segmental quality of the pretonic syllable. Two important facts are derived from the clash-based constraint (9): only the type of stress clash is consistently prohibited; headship of a constituent should not be overlooked with respect to clash. By ranking Parse- σ

3) Pater originally assumes the formulation *Clash-Head, adopting a name suggested by Plag (1999) as a replacement for stress well. That adjacent secondary stresses are well tolerated within English evidences the specific formulation of *Clash-Head. That is, words like *Tìcònderóga* show no tendency toward becoming clashless; examples parallel to **Tìcònderóga* are unattested.

above *Clash-Head (PWd), the candidate (10a) is selected as optimal in the following tableau.

(10) Parse- σ >> *Clash-Head (PWd): Pènnsylvania

Pennsylvania	FtBin	Parse- σ	*Clash-Head (PWd)
i.[Pènnsy][vá]nia		*	
ii.[Pènn][sỳl][vá]nia		*	*!

The optimal candidate (10i) violates higher-ranked Parse- σ , but obeys the lower-ranked *Clash-Head (PWd) yielding the eurhythmic form⁴). In contrast, the defeated candidate (10ii) crucially violates *Clash-Head (PWd) since it has stress on the adjacent syllable to the head syllable of the word.

In sum, it is shown in this section that adjacency of stress to the tonic syllable is strongly avoided and *Clash-Head (PWd) defines what the real clash should be in English. In the following section I investigate clash of degrees of stress in detail and argue that parallel tendency is recurrent in the phrase level as well.

3.2. Stress Degree Clash

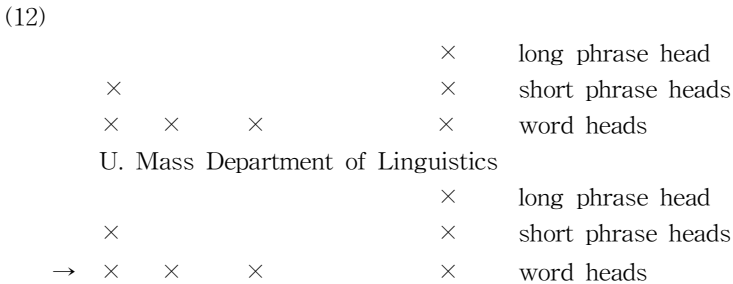
As I defined in section 2, clash of stress degree does not contain adjacent stressed syllables but adjacent higher stress columns. Obviously, stress degree clash works overtly in the phrasal contexts, in particular, in the process of 'Iambic Reversal' (LP, 1977). The rule has many other proposals, which include Kiparsky's (1979) 'Rhythm Rule', Prince's (1983) 'move x', Selkirk's (1984) 'Beat Movement', and Hayes's (1984) 'Rhythmic Adjustment', and so on.

4) The foot created in (10a) might be thought to violate Weight-to-Stress Principle which requires that heavy syllables be placed in the head position of a foot (Prince and Smolensky 1993). Pater thinks that as the sonorant is syllabic, the medial syllable is in fact light, and therefore incurs no Weight-to-Stress violation.

The rule-based analyses dealing with rhythmic adjustment face some data which are not accounted for with clash. Two different kinds of the contexts are these: in spite of perfect rhythmic alternation stress retracts; the retraction is rejected even with the pressure of clash. The following examples, cited by Prince (1983), display alternation of stress, but trigger shift, resulting in phrase-initial stress.

- (11) a. Û. Mass. free véerse club
 b. Û. Mass. Department of Linguístics
 c. vèry special old pórt

Example (11b) is diagrammed by Prince, as in (12).



The counterexamples to clash-based analyses suggest that they may be subject to other principle rather than clash-based one, because clash totally lacks here. The analysis given here analyzes that the data in (11) do not include adjacent stressed syllables triggering stress shift. Thus, it is implied that another constraint promoting the phrase edge such as Selkirk's(1995) Phrase Edge Prominence Constraint must be active to deal with the above examples. It is meaningless to cling to clash-based theories when clash is absent.

Next, what about the cases with unresolved clash? Can the distinction of clash make any difference in predicting retraction, unlike the original clash definition? Hayes's(1984) data seem to be directly relevant to our

present discussion in that they demonstrate that the original definition of clash overgenerates stress retraction. Let us take a look at the following examples, drawn directly from Hayes. Phrases like *Alabama relatives* in (13a), with stress retraction due to clash avoidance, strikingly contrast with those such as *Alabama connections* in (13b), with no retraction in spite of the clash.

- (13) a. Àlabáma rélatives → Àlabama rélatives
 àcrobatíc féats → àcrobatic féats
 Mississíppi Mábel → Mississippi Mábel
 b. Àlabáma connéctions ↗ Àlabma connéctions
 àcrobatíc contórtions ↗ àcrobatic contórtions
 Mìnneápolis Míke ↗ Mìnneapolis Míke

Compare the metrical structure of *Alabama relatives* with that of *Alabama connections*. Although stress retraction in the collocation is imperilled by stress clash on both structures, clash is resolved in (14a) via retraction, but not in (14b).

- (14) a.
- | | | | | | | |
|---------------------|---|---|---|---|--------------|------------|
| × | | × | | × | phrase head | |
| × | × | | × | × | word heads | |
| × | × | × | | × | × | foot heads |
| × | × | × | × | × | × | baseline |
| Alabama relatives | | | | | | |
| → | | | | | | |
| × | | × | | × | phrase heads | |
| × | × | | × | × | word heads | |
| × | × | × | | × | × | foot heads |
| × | × | × | × | × | × | baseline |
| Alabama connections | | | | | | |
| ↗ | | | | | | |

Previous clash-based analyses cannot account for the fact that clash

must be resolved in (14a), whereas clash does not in (14b) since both the configurations are not distinguished from each other with respect to the clash. Although clashes in both (14a) and (14b) look similar, sometimes it triggers retraction, but sometimes does not.

Re-examining the structures given in (14) with the view of clash type, however, (14a) contains adjacency of stresses, fitting to the minimal clash definition made by Nespor (1990), which is given in (4). In contrast, (14b) includes stress degree clash. Recall that just the stress clash, adjacency of stressed syllables, may be significant in English. *Clash-Head (PWd) constraint in (9) prevents a stressed syllable from occurring in pretonic positions.

So, another *Clash-Head constraint is needed so as to operate in the larger constructions, like (15). *Clash-Head (PPh), markedness constraint, should interact with a faithfulness constraint against any change on underlying grid configurations, dominating it.

(15) *Clash-Head (PPh)

No stressed syllable may be adjacent to the head syllable of the Phonological Phrase.

(16) Faithfulness (×)

No deletion or addition on the grid is allowed.

In the following tableaux the extrarhythmic position is indicated by parentheses. Since pretonic stress clash is disfavored, the violation of *Clash-Head (PPh) is fatal in (17ai). On the contrary, where there is no violation of *Clash-Head (PPh), the lower-ranked faithfulness constraint, Faith (×) determines the winner, which is the candidate (17bi).

(17) a. Alabama relatives

Alabama relatives	*Clash-Head (PPh)	Faith(×)
i. × × × × × × × (×) × × × Alabama relatives	*!	
ii. × × × × × × × (×) × × × Alabama relatives		*

b. Alabama connections

Alabama relatives	*Clash-Head (PPh)	Faith(×)
i. × × × × × × × (×) × × × Alabama connections		
ii. × × × × × × × (×) × × × Alabama connections		*!

It is important to note that clash-based constraint, *Clash-Head (PPh) enforces clash avoidance requirements in the pretonic words in the phrases, parallel to the word level counterpart, *Clash-Head (PWd). As both the *Clash-Head constraints are based on the restricted notion of clash, the fact that clash avoidance pattern of word level is replicated at the phrase level in English is captured.

Finally, to complete this section, the issue concerning eurhythmy or 'early accent', which has been in some debate, should be addressed. A tendency to early accent, according to which prominence is attracted to

the first syllable of a word even in the absence of stress clash, is amply documented in recent work by Beckman and her colleagues (Beckman et. al., 1987). I think my present analysis can elucidate the discussion. Formulating eurhythmy as violable constraints, *Clash-Head constraints, it is followed that eurhythmy must interact with constraints guaranteeing early accent tendency.⁵⁾ Both are necessary but the latter must take precedence over the former at the phrase level.

4. Conclusion

I argue that original definition of stress clash drawn by LP seems too loose and strong to deal with clash-related English data adequately. Therefore, I reject the use of the unsophisticated definition of clash, and instead propose that two types of clash be distinguished.

More specifically, I demonstrate that the most disfavored structures in English are those with clash of adjacent stress and so the general clash avoidance principle has to be replaced by its specific instantiations, *Clash-Head constraints within Optimality-theoretic analyses. Since OT allows minimal constraint violation, the modified clash-based eurhythmic constraints suggest that they may give way to higher-ranked constraints and as a result can overcome the arguments against clash since they are violable in some contexts.

Throughout the paper, I have remained ignoring how to deal with a wide range of data linked to rhythmic adjustments. This paper just presents limited amount of data to get to its conclusion and there is an unresolved issue like early accent tendency. Its progress is left for the further research.

5) There are two competing approaches as to the early accent tendency. Gussenhoven's (1991) Rhythm Rule deaccents the medial accent in a phonological phrase, while Selkirk's (1995) Phrase Edge Prominence Constraint strengthens the edges to achieve the result that the phrase becomes more prominent towards its edges than towards its middle.

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