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**TERNARITY IS NOT AN ISSUE: SECONDARY STRESS IS LEFT EDGE MARKING**

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Claim: Secondary stress is only marginally determined by segmental parameters and mainly marks the left edge of the word.

**1. SECONDARY STRESS: TWO APPROACHES**

In the approach adopted here, stressed syllables are those indicated in pronouncing dictionaries such as Wells (2008) or Jones (2006). These are syllables which generally receive pitch accents in discourse and all full vowels can be stressed or unstressed.<sup>1</sup>

The position of secondary stress is:

- determined by segmental, moraic and/or foot structures (Burzio 1994; Hammond 1999; Pater 2000)
- left edge marking, which is consistent with:
  - the fact that English words generally begin with a stressed syllable (Cutler & Carter 1987)
  - the history of English: preservation of Germanic root-initial stress (Fournier 2007)
  - the concept of Edge Prominence in van der Hulst (2012)

**2. THE DATA**

Many studies on English phonology are based on limited samples whose representativeness of the whole empirical record could be questioned.

We constituted an exhaustive set of words with at least three pre-tonic syllables, free from morphological biases:

- Semantically transparent prefixes, which can have their own phonological domain, (Kaye 1995; Raffelsiefen 1999; Szpyra 1989); e.g. *interreláte*, *misàpprehénd*, *rèintroduíce*

<sup>1</sup> It may be more appropriate to talk about “accented” syllables (see Dabouis 2016: §3.1 and Fox 2000: §3 for discussion).

- Suffixal derivatives from free bases, which preserve the stress of their base (see Collie (2007); Dabouis (2016); Hammond (1989); Kiparsky (1979)); e.g. *original* > *originálicity*
- Compounds; e.g. *brìgadier-général*, *gènder-specific*, *làdy-in-wáiting*
- Neoclassical compounds, whose constituents are stress-invariant (Fournier 2010; Guierre 1979); e.g. *àgoraphóbic*, *larýngológical*, *òrthochromátic*

Another group of words was left out because they can be related to another form in English, although they may not be morphologically derived from it (e.g. *comèdiénne* ↔ *comédian*, *Illùmináti* ↔ *illúminate*; see full list in Appendix 1).

Some with rather obscure morphology, which could potentially be accessed by speakers, were also left out (e.g. *Guàdaljára*, *Guàdalcanál*, *Hàrdicanúte* (< *Canúte*); see Appendix 2 for the full list). In these words, whenever the leftmost constituent is dissyllabic, stress is on the first syllable (e.g. *Guàdalquivír*, *Hàrdicanúte*, *Fuèrteventúra*).

**3. RELEVANT DATA**

The final set is composed of 142 words, including 85 proper names (see Appendix 3 for the full list).

Six words have two secondary stresses:

/2)2-/: *condottiere*, *chinoiserie*, *aggiornamento*

/22-/: *Constantinople*, *Rhosllanerchrugog*

/2020-/: *Antananarivo*

The remaining 136 words are stressed as follows:

First syllable only	119	<b>100 (74%)</b>	
First or second syllable	(87%)	<b>19 (14%)</b>	36
Second syllable only		<b>17 (13%)</b>	(26%)

Overall: left edge marking.

Question: What can account for the cases which may have /02-/?

#### 4. THE ROLE OF SEGMENTAL STRUCTURE

A number of segmental variables were tested. Three turned out to be related to the position of secondary stress.

##### 4.1. Closed second syllable

When the second syllable is closed, /02-/ is possible in all 9 cases:

*amontillado, Anaximander, Balenciaga, conquistador, Monongahela, Seringapatam, Ticonderoga, Valenciennes, Vientiane*

##### 4.2. Closed first syllable

The effect of syllable closure can also be observed in the first syllable: when it is closed, we have /20-/ in 19/20 words (95%):

*Antofagasta, Bandaranaike, Calvocoressi, consigliere, entrepreneur, Escorial, espionage, fanfaronade, intrapreneur, Ordzhonikidze, Pantagruel, Pantelleria, Penthesilea, prestidigitation, Quetzalcoatl, Trincomalee, tsutsugamushi, Valpolicella, Yoknapatawpha, Ystalyfera*

One exception: *Pantelleria* (but see below on orthographic geminates)

Only one case for which both syllables are closed: *conquistador* /0100/ ~ /0201/ ~ /2001/

##### Orthographic geminates

Orthographic geminates behave like consonant clusters:

- /02-/ with <C'C'> in the second syllable: *Pantelleria, boutonniere, appoggiatura, acciacatura*
- /20-/ with <C'C'> in the first syllable: *Ballymacarrett, Carriacou, Cassiopeia, Cassivelaunus, didgeridoo, hullabaloo, millefiori, mulligatawny, Passamaquoddy, Tippecanoe, Torremolinos, Valladolid, Winnepesaukee*

This is not the first time orthographic geminates have been reported to influence phonology (see Burzio 1994: 56-57; Chomsky & Halle 1968:148; Giegerich 1999: 231; Guierre 1979: 285-286; Liberman & Prince 1977; Stockwell & Minkova 2001: 173).

##### 4.3. Initial onset

If we consider only the words for which both syllables are open:

	With <C'C'>		Without <C'C'>	
	/02-/ possible	/20-/ only	/02-/ possible	/20-/ only
Initial onset	12 (15%)	66 (85%)	11 (17%)	53 (83%)
Onsetless	13 (48%)	14 (52%)	11 (44%)	14 (56%)
Total	25 (24%)	80 (76%)	22 (25%)	67 (75%)

There is a significant difference between words with an onset and those without, whether we include orthographic geminates ( $\chi^2=10.131$ ,  $p<0.002$ ) or not ( $\chi^2=5.5791$ ,  $p<0.05$ ).

Examples:

	/02-/ possible		/20-/ only	
Initial onset	<i>chiaroscuro</i>	<i>Coriololanus</i>	<i>cabriolet</i>	<i>caricature</i>
	<i>Navratilova</i>	<i>taramasalata</i>	<i>Peloponnese</i>	<i>Tarahumara</i>
Onsetless	<i>aficionado</i>	<i>Eleonora</i>	<i>abracadabra</i>	<i>Arimathaea</i>
	<i>Epaminondas</i>	<i>inamorata</i>	<i>Eleanora</i>	<i>elecampagne</i>

#### 5. CONCLUSION

Once morphologically questionable items are excluded, initial stress is predominant as it is the only possible pattern for 74% of words and it is a possible pattern for 87% of words.

A closed second syllable opens the possibility of having /02-/.

A closed first syllable stabilizes stress on the first syllable.

- Cf. the systematic role of consonant clusters in primary stress placement in Modern Latin words and borrowings (Fournier 2010a,b)

Small effect of onsetlessness.

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<sup>2</sup> The relationship with *restaurant* is supported by the alternative pronunciation [ˌrɛstərɒnˈtʃɜː].

<sup>3</sup> Source: OED [online]

## Appendices

### Appendix 1: Words related to a free form

- cònvèrsaziòne* ↔ *cònvèrsation*      *extravagánza* /02-/ ~ /22-/ ↔ *extrávagant*  
*incommunicádo* ↔ *incommunicative*      *rèstauratèur*<sup>2</sup> ↔ *rèstaurant*  
*comèdiénne* ↔ *comédian*      *equèstriénne* ↔ *equèstrian*  
*intelligéntsia* /02-/ ~ /22-/ ↔ *intèlligence*      *littèratèur* ↔ *litérate*  
*matériél* (~ /0100/) ↔ *material*      *ràtionále* ↔ *rátional*  
*tragèdiénne* ↔ *tragédian*  
*Antonioni* /20-/ ~ /02-/ ↔ *António*      *Ecclèsiástes, Ecclèsiásticus* ↔ *ecclèsia*  
*Illumináti* ↔ *illúminate*      *Louisiana* /02-/ ~ /20-/ ↔ *Lóuis, Louíse*  
*Thèodorákis* ↔ *Théodore*      *Tripolitánia* ↔ *Tripoli*  
*Hispaniòla* /20-/ ~ /02-/ ↔ *Hispánic* (*Hispano-* /010/ ~ /100/)
- Apòllinàire, Apòllinàris, Apòllodórus* ↔ *Apóllo*  
*Álamogórdo* ↔ *Álamo*      *Châteaubriánd* (US /02-/) ↔ *château* (US /01/)  
*Afghanistan* /0100/ ~ /0201/ ~ /2001/ ↔ *Áfghan, afgháni*  
*Balúchistán* ~ /0100/ ↔ *Balúchi*      *Tadzhikistán* ↔ *Tadzhik* /01/ ~ /10/  
*Turkmenistán* /20-/ ~ /02-/ ↔ *Túrkmén*      *Úzbekistán* ↔ *Úzbek*  
*Waziristán* ↔ *Wazír*<sup>3</sup>
- Àllahabád* ↔ *Allah* /10/ ~ /01/      *Hýderabad* ↔ *Hýder* ??  
*Jallàlabád* ↔ *Jalál*<sup>4</sup>
- Mèditerránean* ↔ *médi(o)-* cf. *médifixed, mèdio-dórsal*  
*Mèsopotámia* ↔ *méso-* cf. *mésolect, mèso-dórsal*  
*Mòntefiòre, Mòntevideo* (~ /20100/) ↔ *Mónte*

### Appendix 2: Words with obscure morphology

- Àbergavénny, Àbertilléry* cf. *Ábercròmbie* (~ /2010/), *Àberdéen, Àbernéthy*  
*Guàdaljàra, Guàdalcanál, Guàdalquivir*
- Àhènobárbus*      *Bophuthatswána* /20-/ ~ /02-/ (< *Tswána*)  
*Dnèpropetróvsk* (< *Petróvsk*)      *Fuèrteventúra* (< *Ventúra*)  
*Hàrdicanúte* (< *Camúte*)      *Risòrgiménto*

<sup>4</sup> Source: <http://www.pronouncenames.com/pronounce/Jalal>

**Appendix 3: Relevant data***Words with stress on the first syllable only*

abracadabra	Cunobelinus	Machiavelli	Popocatepetl
aguardiente	didgeridoo	mademoiselle	prestidigitation
Antofagasta	Donaghadee	Magherafelt	profiterole
Aotearoa	Ediacaran	marchioness	Quetzalcoatl
Apalachicola	Eleanora	marihuana	rodomontade
Arimathaea	elecampane	marionette	Sacajawea
asarabacca	eleemosynary	millefiori	Sardanapalus
Azerbaijan	entrepreneur	mujaheddin	sarsaparilla
Ballymacarrett	Escorial	mulligatawny	Savonarola
Bandaranaike	espionage	Nakhichevan	Semipalatinsk
Birobidzhan	Fanagalo	Nebuchadnezzar	Shijiazhuang
Boadicea	fanfaronade	Novosibirsk	tagliatelle
cabriolet	Haleakala	Nuku‘alofa	Tarahumara
cafetière	Halicarnassus	Okefenokee	Tippecanoe
Calvocoressi	Hercegovina	Ordzhonikidze	tiramisu
carabinieri	hullabaloo	Pantagruel	Torremolinos
caricature	intrapreneur	Papiamento	Trincomalee
Carriacou	ipecaquanha	Paraburdoo	tsutsugamushi
Cassiopeia	jaborandi	Passamaquoddy	Valladolid
Cassivelaunus	jardiniere	Peloponnese	Valpolicella
casuarina	Kalamazoo	Peloponnesus	Winnepesaukee
catamaran	Kilimanjaro	Penthesilea	Woolloomooloo
certiorari	Laodamia	pichiciago/pichiciego	Ynysybwl
consigliere	Laodicea	Pitjantjatjara	Yoknapatawpha
Copacabana	Liliburlero	pococurante	Ystalyfera

*Words with stress on the second syllable only*

acciaccatura	chiaroscuro	Mpumalanga
aficionado	divertimento	Scheherazade
amanuensis	Epaminondas	Seringapatam
aperitif	Idomeneo	Tegucigalpa
appoggiatura	lavalier	Vientiane
Balenciaga	Monongahela	

*Words with variable stress*

Ahasuerus	egalitarian	repetiteur
amontillado	Eleonora	taramasalata
Anaximander	inamorata	Tiananmen
Bartolommeo	inamorato	Ticonderoga
boutonniere	Iphigenia	Valenciennes
conquistador	Navratilova	
Coriolanus	Pantelleria	