Class 6
Morphological Doubling Theory

2/27/18

1 An alternative to BRCT: Morphological Doubling Theory

- Many people — e.g. Inkelas & Zoll (2005), Kiparsky (2010), McCarthy, Kimper, & Mullin (2012) — have argued that back-copying cases like Johore Malay do not actually exist.
  - Various people also argue against other sets of cases predicted by BRCT, depending on what their own alternative framework does or does not predict.
- The argument then goes: BRCT overgenerates, so we need a more restrictive theory, one without BR correspondence.
- Among the alternatives, the one that I believe does the best job of dealing with the facts is "Morphological Doubling Theory" (MDT; Inkelas & Zoll 2005 [IZ]).

- MDT's view of reduplication:
  - Reduplication is *not* the result of duplication/copying/correspondence in the **phonology** (1a).
  - Reduplication is (exclusively) the result of double insertion of morphological constituents in the **morphology** (1b), followed by (not-so-)special phonological treatment.

(1) Possible means of duplication (IZ:2)

a. Phonological: {X} $\xrightarrow{\text{Spellout}}$ /*x*/ $\xrightarrow[\text{Copying}]{\text{Phonological}}$ [*x*-*x*]

b. Morphological: {X} $\xrightarrow[\text{Duplication}]{\text{Morphosyntactic}}$ {X}{X} $\xrightarrow{\text{Spellout}}$ /x-x/ $\rightarrow$ [*x*-*x*]

- IZ claim that the phonological properties of reduplication as a whole are not really any different than other sorts of morphologically-conditioned phonology.
  - i.e., the only mechanisms you need in order to capture the phonological properties of reduplication are those which you independently need in order to capture more run-of-the-mill morphophonology.
- This means there should be no special (phonological) mechanisms for reduplication, namely BR correspondence.
- They argue that the sorts of patterns that would require BR correspondence (in MDT) don't actually exist.
  - → Much of the data we thought needed BR correspondence is based on incorrect analyses, which emerges when you look at reduplication in the context of the language's larger morphological system.
    - ⋆ Their mantra is basically: *look at the rest of the morphology.* When you do that, some of the patterns which look weird on their face are actually not weird for that language.

⇒ One problematic issue for MDT:

- They claim that all the types of phonological processes that apply in reduplication apply (in equivalent frequency) in non-reduplicative morphologically-conditioned phonology.
- This is baldly not the case w.r.t. to **truncation** (cf. Urbanczyk 2008), which must apply ubiquitously in reduplication but almost never applies in other morphological constructions (other than hypocoristics).

- Also, they have to also claim that reduplicant shape alternations cannot be dependent on conditions at the base-reduplicant juncture (only by conditions of the input), unless it can be derived consistently by the phonology of the mother node.

→ I think Ponapean might be such a case. Also probably Ancient Greek.

1.1 Sign Based Morphology

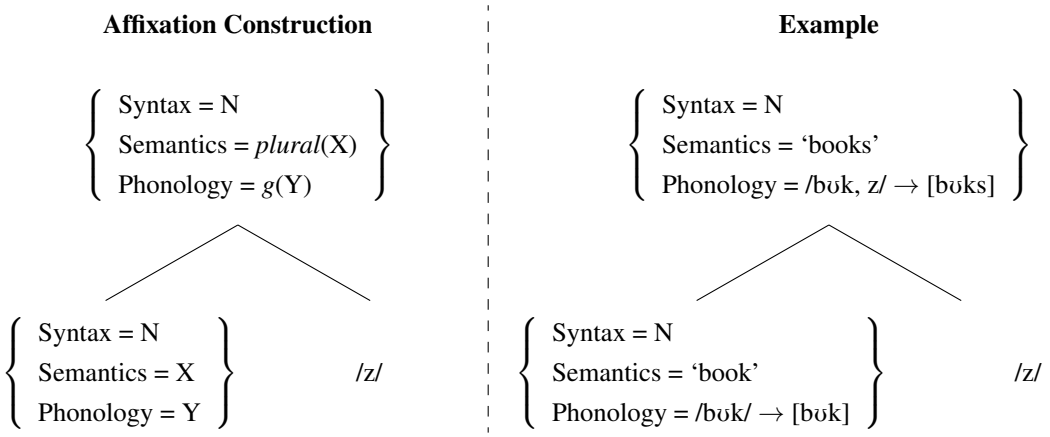
- MDT is based on Sign-Based Morphology (SBM; Orgun 1996, 1999, *et seq.*). SBM is a version of Construction Grammar. Words (and morphological constituents) are instances of "constructions":

> "*In SBM constructions (and meta-constructions) are grammatical primitives, elaborated versions of phrase-structure rules which encode the semantic, syntactic, and phonological mappings between daughters and mothers.*" (IZ:12)

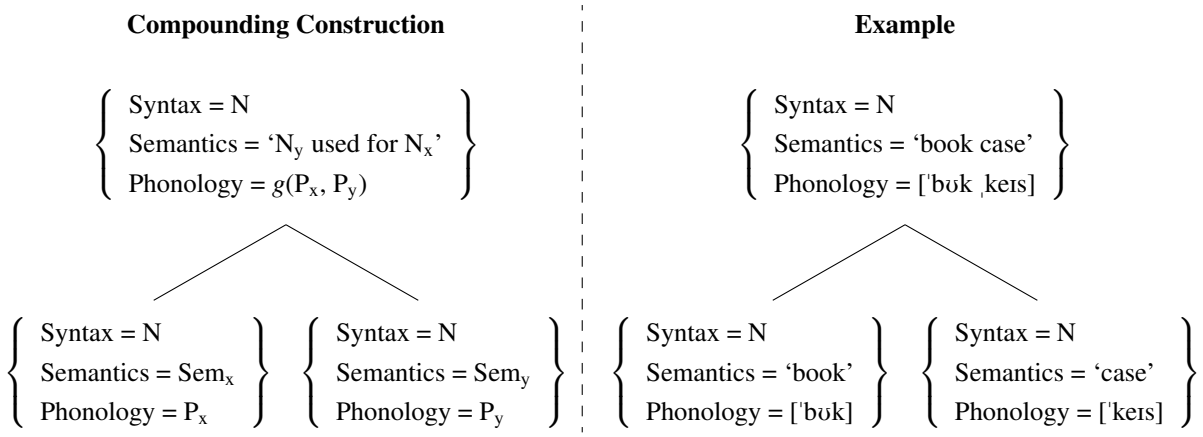
- Constructions are nodes in the morphological tree.
  - They make specific demands about the (morpho)syntax and semantics of what they contain (≈ what they select for).
  - They are characterized by a (morpho)syntax and semantics that they result in.
  - They have a particular, potentially unique phonology.

- The construction for the English plural is given in (2), and the construction for English noun-noun compounding is given in (3).

(2) SBM representation of plural in English (IZ:13)



(3) SBM representation of noun-noun compounding in English (IZ:13)



- The top node is called the "mother" node, the bottom nodes are called "daughter" nodes.

- IZ assert that what makes a construction "reduplicative" is when the mother node subcategorizes for daughters with the same semantic specification.
  → Reduplication is essentially compounding (like the construction in (3)), but both daughters are specified as **{Semantics = 'Sem$_x$'}**.

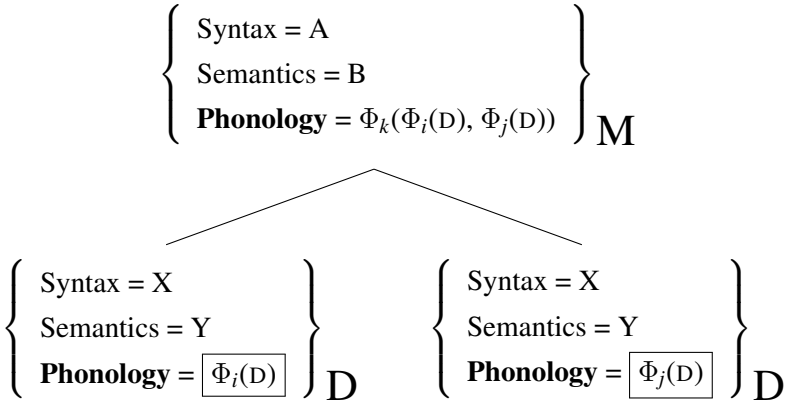
1.2 Cophonology Theory

- Phonology is handled by "Cophonology Theory" (Inkelas, Orgun, & Zoll 1997, Inkelas & Zoll 2007).
  - Each morphological construction is indexed to a particular phonology — its "cophonology".
- There is no necessary connection between different cophonologies in a language; they can be characterized by completely different properties.

⇒ The trick is, there is no necessary connection between the syntax/semantics of a node and its phonology.

(4) Reduplicative construction with distinct cophonologies

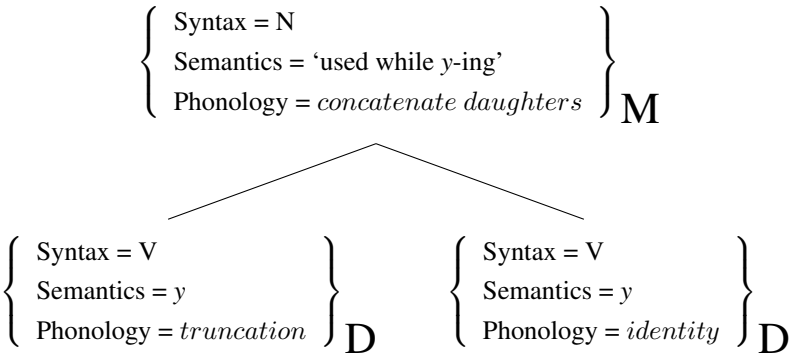
Reduplicative Construction



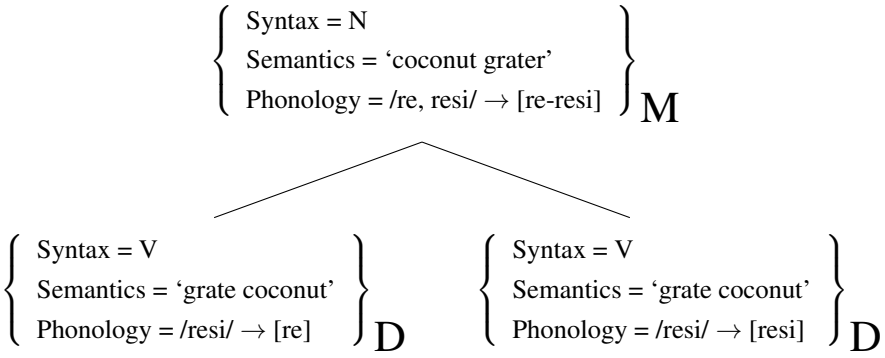
- This means that the two daughters can be passed on to the mother node with different phonological outputs, even though they had the same phonological inputs.
- The mother node cophonology then determines how the (potentially distinct) outputs of the daughter cophonologies get concatenated.
  - But the mother node applies the same phonology to both daughter outputs.

(5) Reduplication in Banoni (IZ:15–16); e.g. $\sqrt{}$*resi* 'grate coconut' → *re-resi* 'coconut grater'

Reduplicative Construction



Example



- In this framework, partial reduplication is to be understood as a construction that calls for semantic identity of its daughters, and has **truncation phonology** for one daughter but not the other.

⋆ IZ give no rationale for why reduplicative constructions so frequently have truncation of one daughter, but other constructions (e.g. simple affixation) so rarely do.
  - It thus feels like this may be missing an important point...

- Non-transparent reduplication-phonology interactions basically result from the fact that different phonological grammars can hold at different nodes.

2 Indonesian stress in MDT

- IZ (102–103, 108–112) provide an analysis of Indonesian, which exhibits a special stress pattern in reduplication under one very specific circumstance.

- Compounds normally show stress subordination of the first member (6).

(6) Stress in Compound Forms (McCarthy & Cohn 1998:51; cf. Cohn 1989:188)

a. [càp][pós] 'postmark' (M&C:32)
b. [tùka][cát] 'printer'
c. [polùsi][udára] 'air pollution'
d. [bòm][átom] 'atom bomb'
   i. pəm-[bòm][atóm]-an 'bombing'
   ii. pəm-[bòm][àtom]-án-ña 'the bombing'
e. [anèka][rágam] 'varied'
   i. kə-[anèka][ragám]-an 'variety'
   ii. kə-[anèka][ràgam]-án-ña 'the variety'

- In reduplication (which looks kind of like compounding), sometimes you get the expected subordination patter (7ii), but sometimes you get double primary stress (7i) contrary to the expected pattern.

(7) Stress in reduplicated forms (McCarthy & Cohn 1998:52; cf. Cohn 1989:185)

	i. *Matching*		ii. *Non-matching*	
a.	[búku][búku]	'books'	[bùku][bukú]-ña	'the books'
b.	[waníta][waníta]	'women'	[wanìta][wanitá]-an	'womanly' (adj.)
c.	[màsarákat][màsarákat]	'societies'	[màsaràkat][màsarakát]-ña	'the societies'
d.	[minúm-an][minúm-an]	'drinks'	[minùm-an][mìnum-án]-ña	'the drinks'
e.	[hák][hák]	'rights' (M&C:32)	di-[pàs][pás]-kan	'tried on repeatedly'

- This has been analyzed as a BR faithfulness effect (Kenstowicz 1995, McCarthy & Cohn 1998, Stanton & Zukoff 2016).
  - Stress is assigned independently to (i) the first member and (ii) the second member + any suffixes.
  - When there are no suffixes, the stress grammar places stress on the same syllables in both members.
    → IDENT[stress degree]-BR ensures that they both have primary stress, contravening the constraint against multiple primary stresses.
  - Where there are suffixes attached to the second member that are not present on the first, the stress grammar places stress on different syllables in the two members.
    → IDENT[stress degree]-BR can't be satisfied (because each stressed correspondent will have an unstressed correspondent), so there's nothing to contravene subordination.

- There's evidence that this isn't the right generalization and analysis.
  - Namely, there are two circumstances where both members bear stress on the corresponding syllables but do not match in stress degree:

(8) Matching stress location without matching stress degree (IZ:110)

	i. *Matching*		ii. *Non-matching*	
a.	(cf. [hák][hák]	‘rights’)	di-[pàs][pás]-kan	‘tried on repeatedly’
b.	[kərá][kərá]	‘monkeys’	[kərà][kərá]-an	‘toy monkey’
c.	[kəcíl][kəcíl]	‘small (dist.)’	mə-[ŋəcìl][ŋəcíl]-kan	‘to belittle s.t.’

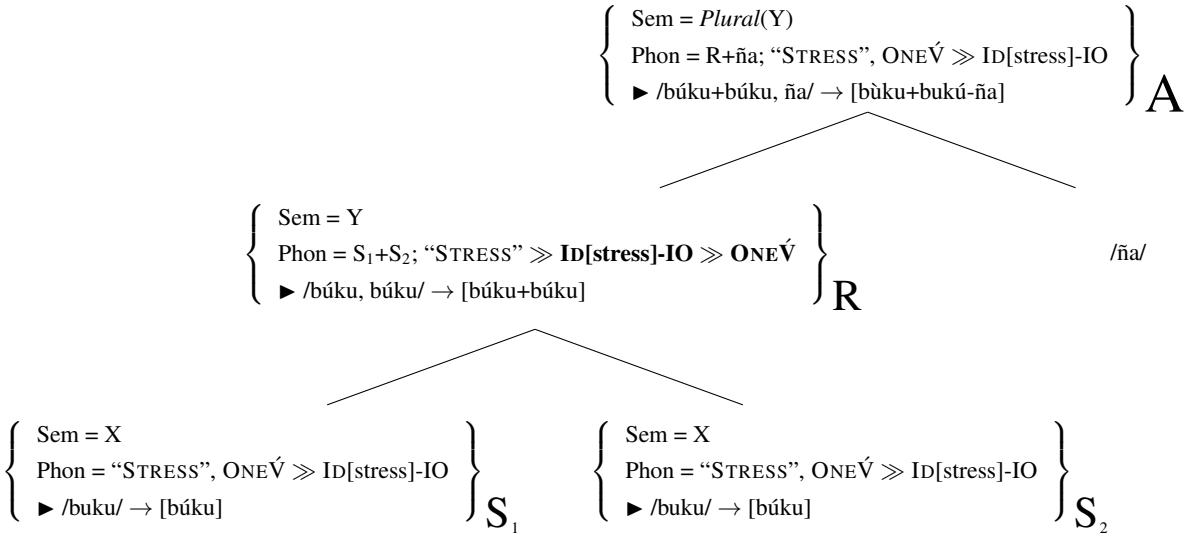
- Stress rules:
  - Monosyllables are stressed.
  - Disyllables are stressed on the initial (= penult).
  - ə is always unstressed; so, in CəCV(C), stress the final not the penult.

- For reduplicated monosyllabic roots with a monosyllabic suffix ((8a) = (7ii.e)), the root will be stressed in both members.
  → These don’t show stress matching.
- For reduplicated CəCV(C) roots with a monosyllabic suffix (8b,c), the final syllable of the root will be stressed in both members.
  → These don’t show stress matching.

⇒ This contradicts the BR faithfulness analysis.

- IZ give a completely different analysis in MDT, based on placing the stress subordination grammar at different nodes.
  - The subordination cophonology (ONEV́ ≫ ID[stress]-IO) is present at the stem construction node (S) and at the affixation construction node (A) [and also at the non-reduplicative compounding node].
  - **But**, the stress preservation cophonology (ID[stress]-IO ≫ ONEV́) is present at the reduplication construction node (R).

(9) Stress cophonologies in Indonesian



- The primary stresses which are assigned to the independent stems that get concatenated in reduplication are preserved at the point when reduplication happens.
  - If this is the end of the derivation, this double primary stress form will surface as an output.
- However, if reduplication is further subject to suffixation — which has the subordination cophonology — the second primary stress will get demoted, regardless of whether stress moves in the second member.

- In this analysis (which does a much better job at capturing the data), the special status of primary stress results from special faithfulness to the *input*, not special faithfulness between base and reduplicant.
  - IZ refer to this as "Native Identity", as opposed to "Coerced Identity".
- This special faithfulness is not tied directly to the fact that it is reduplication, but simply to the fact that it is a particular morphological construction, and thus can have special phonology if it wants.
  - This predicts that any type of morphological construction can display special stress properties.
  - This is a reasonable statement given the typology, in which all sorts of different morphemes can induce special stress properties cross-linguistically.

3 Overapplication in Javanese

- Javanese has a number of overapplication/underapplication processes in reduplication, which (for the most part) can be analyzed using BR correspondence.
  - There are some tricky interactions (which kind of look like back-copying) that may be hard for BRCT; see Wu (2017).
- Alternatively, IZ (§5.1) argue that they can instead be understood in MDT as regular application followed by truncation.

3.1 Data

3.1.1 Javanese *h*-deletion

(10) a. /h/ → Ø / V_V
b. /h/ → [h] elsewhere (namely, _C & _#)

(11) Javanese *h* deletion (McCarthy & Prince 1995:2)

	Stem	i. _+C	ii. _+V	iii. *"Expected" Red*	Gloss
a.	anɛh	anɛh-ku	anɛ.-e	—	'strange'
b.	bəḍah	bəḍah-bəḍah	bəḍa-bəḍa.-e	*bəḍa[h]-bəḍa.-e	'broken'
c.	ḍajɔh	ḍajɔh-ḍajɔh	ḍajɔ-ḍajɔ.-e	*ḍajɔ[h]-ḍajɔ.-e	'guest'

3.1.2 Javanese *a*∼ɔ alternation

- Dudas (1976) argues that *a* is in complementary distribution with ɔ in Javanese:

(12) a. ɔ / _#
b. ɔ / _Cɔ
c. *a* elsewhere

- There is evidence from alternations under suffixation:

(13) Distribution of *a* vs. ɔ in Javanese

stem	gloss	derived
djaksɔ	public prosecutor	djaksa-ne
djɔkɔ	young man	djaka-ne
djarwɔ	meaning	djarwa-ne
djɔrɔ	drill	djara-ne
karjɔ	work	karja-ne
kɔrɔ	climbing vine	kara-ne
warnɔ	sort, variety	warna-ne
wɔrɔ	say, speak	mara-ʔake

- This doesn't hold in reduplication: whichever quality is proper to the righthand copy is found also in the lefthand copy.

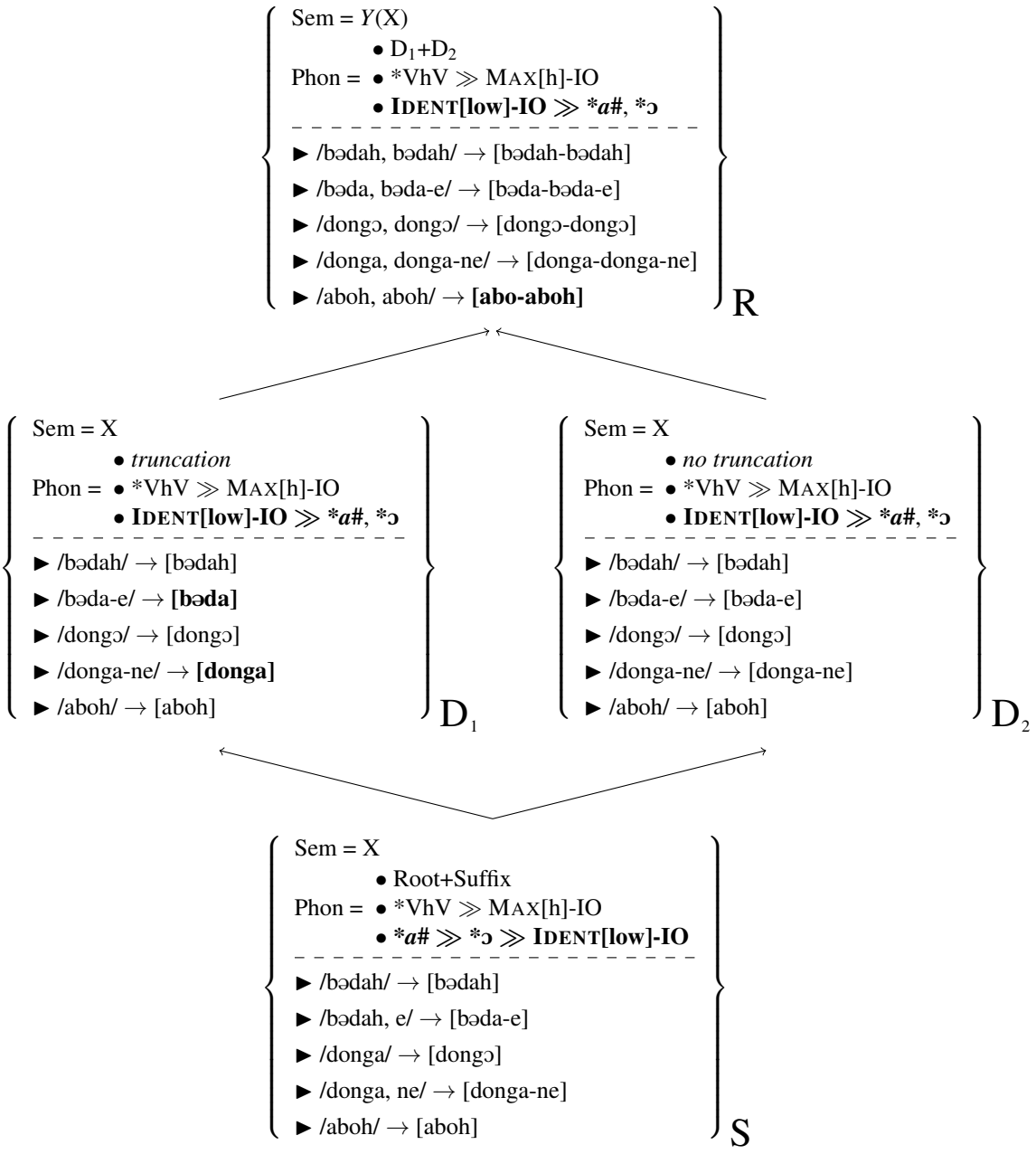
(14) Misapplication in reduplication (Dudas 1976:206)

stem	gloss	doubled	doubled affixed
dongɔ	'prayer'	dongɔ-dongɔ	donga-donga-ne
dɔwɔ	'long'	dɔwɔ-dɔwɔ	dawa-dawa-ne
medjɔ	'table'	medjɔ-medjɔ	medja-medja-ne

3.2 MDT analysis

- These cases and others in Javanese can be analyzed in the following way:
  1. The reduplicative construction takes fully affixed stems as its daughters (i.e. D[aughter]$_1$ and D[aughter]$_2$ select S[tem]'s).
  2. Phonological processes (e.g. *h*-deletion and *a*∼ɔ alternation) apply regularly within the fully affixed stems (in the S node).
  3. The lefthand daughter (D_1) has truncation phonology that deletes everything which is not part of the root.
     - *It's actually a lot more complicated than this, but this is close enough.*
  4. (Some of) the phonological processes which apply in the affixation nodes are *inactive* in the D nodes and the mother node (R[eduplication]), such that some alternations (like *a*∼ɔ) do not get fixed even though they exist outside of their normal context.

(15) "Overapplication" in Javanese reduplication in MDT



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