Inkelas and Zoll (henceforth IZ) have produced a thought-provoking and solid proposal for a different way to look at reduplication than the widely used Base-Reduplicant Faithfulness constraints of McCarthy and Prince (1995). Here I offer a fairly detailed summary of each chapter of the book before I give a brief overall evaluation.

Chapter 1 of the volume serves to introduce IZ’s theory as well as review traditional ways of approaching reduplication. In recent decades, reduplication has been thought of as a mostly phonological phenomenon, with a RED (for “reduplicative”) suffix or prefix attached to a stem. The RED functions to copy the stem, and phonological modifications are made to the reduplicant. This copying can be total, as in the Warlpiri plural, or it may be partial, as in Hausa pluractional:

(1) Warlpiri   kamina ‘girl’   kamina-kamina ‘girls’
    Hausa     kira: ‘call’  kik-kira: ‘call several times’

This can be represented as a process as below, using hypothetical “eat,” represented morphosyntactically as “EAT”:

(2) EAT → by spellout → [eat] → by phonological copying → eat-eat

IZ do not propose that phonological reduplication never occurs, but do propose that most reduplications are a result not of phonological reduplication, but duplication of morphosyntactic (MS) features, as below:

(3) EAT → MS feature duplication → EAT-EAT → spellout → [eat-eat]

The central question, then, is does the reduplication take place after the phonology of the stem is spelled out, or before any phonology has had any chance to take place? IZ favor the latter in proposing a Morphological Doubling Theory (MDT). In MDT, reduplication results when the morphology calls twice for a constituent of (mostly) a stem, and then either of these constituents may be further phonologically modified. Since the morphology produces two semantically
identical copies of the stem, there is no asymmetry between these; that is, the terms “base” and “reduplicant” do not fit formally within this theory.

The phenomenon of divergent allomorphy provides key evidence for MDT. This is when two occurrences of the same morpheme occur with different morphology. An example comes from Chechen, where the first verb copy has the infinitival form, but the second is inflected:

\[(4)\] Ahmad, [ʕa ʔaːiina]VP, dʕa-vaghara
Ahmad [stay.INF stay.PP]VP DX.V.go.WP
‘Ahmad stayed (for a while) and left.’

From other examples, we know that the enclitic ʔa requires another element preceding it. If one is not present, then the verb is reduplicated, but as the infinitive, not the inflected form. These two cases of the verb have different forms of the verb stem (suppletive allomorphy), and so phonological copying is not possible with these.

IZ note that while many people think of reduplication as iconic, that is reduplicated nouns indicate plurals, reduplicated verbs indicate plurality of action, and reduplicated adjectives indicate intensity, there are actually “all sorts” of meanings associated with reduplication. For example, in Rotuman, adjectives are formed from nouns by reduplication, and in Tarok, partial reduplication marks third person singular possessive!

The scheme of the constructions in MDT is that two daughter components, each with their individual syntax, semantics, and phonology, contribute to the mother node, which has its own syntax, semantics, and phonology. This formalism equips MDT with the capability to handle non-compositional reduplication (such as the Tarok and Rotuman examples above).

A “cophonology” in MDT is the phonology of each daughter component of the reduplication, but also refers to mappings from the daughter phonologies to the mother phonology. (This term is unfortunate, since the term has traditionally been used for different phonological systems operating within the same language since Pike and Fries 1949.) Thus in a typical reduplication, there are three cophonologies. This schema has intrinsic layering; the output of the daughters’ cophonologies are the inputs to the mother’s cophonology.

As argued in Chapters 5 and 7, there is still a place for purely phonological reduplication, but IZ limit this to cases of phonological necessity, where there is no change in meaning involved. For example, Yoruba reduplication of the first consonant is driven by the need for a consonant-initial syllable.

The two types of reduplication have several distinguishing characteristics. Morphological reduplication, as argued here, serves a morphological purpose, while phonological reduplication serves a phonological purpose (this generally entails a single replicated segment, rather than the larger chunks of morphological reduplication). Phonological reduplication also must have adjacent reduplicants, while this is not necessarily so for morphological reduplication. Finally, since morphological reduplication has at its core a semantic identity between components, the phonological identity of these components is a by-product or epiphenomenon, while in
phonological reduplication, phonological identity is at its core. This last is a radical difference between MDT and prevailing theories which assume phonological identity between base and reduplicant.

Chapter 2 focuses on bolstering the morphological evidence for the specific claims of MDT. The first claim is that the unit that reduplication deals with is morphological (e.g. stem, affix), rather than phonological (e.g. syllable, foot). They give cases where affixes are reduplicated, e.g. Amele (Roberts 1987:254), in which iterativeness is marked not by the verb stem reduplicating, but the object marker (if one is present):

(5) gobil-du-du ‘stir-3s-3s’ = stir and stir it

This shows reduplication based on a morphological unit, and that the semantics of the whole is not equivalent to its components.

The second claim is that the two units of reduplication fundamentally have a semantic identity, not a phonological one. The lack of phonological identity is shown by the presence of empty morphs in some languages. In Ndebele, for example (Hyman, Inkelas, and Sibana to appear), the reduplicant (here the first of the replicated units) must be disyllabic. If the verb stem is monosyllabic, an empty morph yi- is added, showing the reduplicant cannot be a phonological copy of the stem:

(6) ‘to come’ uku-za reduplicated form: uku-zayi-za

IZ also give cases where distinct allomorphs of a root both appear in the reduplication, with no phonological conditioning, and also cases of “synonym constructions,” where the duplication uses two separate morphemes which are semantically identical, e.g. Vietnamese - ‘call-call’ = ‘to call upon, to appeal,’ and argues that the latter fits nicely into the MDT framework as well.

Chapters 3-4 look at phonology in the daughter and mother nodes of MDT reduplication. In Chapter 3, IZ state that MDT is a Native Identity Theory of reduplication, that is, each reduplicant has its own phonology that is not dependent on the other’s phonology. A corollary is that there is no phonology that is specific to reduplication; rather, one need only apply the phonology of the language in general. The same phonology that applies to reduplication, such as truncation, can apply elsewhere, as they demonstrate for Diyari.

Their concept of “cophonology” is a phonology associated with each morphological construction. A specific rule is not associated with the construction, but rather the entire bundle of rules that comprises the cophonology is.

Unlike some other theories, MDT predicts that each daughter reduplicant may undergo quite independent modifications. IZ give several illustrations of languages where this does happen, e.g. Hua, Hausa, and Tarok. They also survey the evidence of other researchers which claim to show the necessity of an output form of a reduplicant depending on the output form of the base (O-O Correspondence) and find it wanting.
In Chapter 4, IZ go beyond the daughter phonologies to argue there is a layer of phonology (a cophonology) associated with the mother node, that is, the construction as a whole. This is compatible with Kiparsky’s Stratal OT approach (Kiparsky 2000), though not identical. For example, coronal dissimilation in Dakota happens only in the reduplication, not in compounds or word-internally. So in OT terms, for reduplication, *Cor-Cor > IO-Ident, but in other constructions, IO-Ident > *Cor-Cor. Having a cophonology associated with each construction means that there is no ranking paradox. Noteworthy also is that it is the consonant of the base that dissimilates; this is unexpected in McCarthy and Prince’s 1995 Base-Reduplicant Correspondence Theory, where the base should be unchanged. Another example is from Indonesian stress patterns, in which a stress is demoted in one of two members of a compound, but does not do this in reduplication, showing again that a specific cophonology is needed for that construction. IZ go over a number of cases in some detail, such as Klamath, to make their case. They conclude the chapter with an examination of Struijke’s “existential faithfulness” applied to a detailed look at Lushootseed, and argue that MDT is superior.

Chapter 5 is where IZ deal in detail with opacity issues, where generalizations are not surface-true. Specifically, in reduplication, an alternation which is phonologically conditioned sometimes applies where the conditioning is not present; this is called “overapplication.” In contrast, “underapplication” occurs when an alternation that is expected because of its environment fails to occur.

Both are illustrated and analyzed with several examples from Javanese and Fox, along with minor examples from other languages. One example of overapplication is stem-final h-deletion, which happens when the stem is followed by certain suffixes, as in (7a):

(7) a. ‘broken’ -e ‘broken-DEMESTRATIVE’

b. -

When reduplicated in (7b), the -h of the first copy is also deleted, even though the conditioning suffix does not follow it. IZ analyze this and other Javanese patterns similarly by saying each daughter cophonology has the inputs and outputs in (7a), i.e. -e → -e - , and truncates the first copy, yielding - . This truncation plays a vital role in the other Javanese data examined as well.

In the context of opacity, IZ specifically review the MDT approach compared with “coerced identity theories,” those treating reduplication as resulting primarily from phonological identity between a base and its reduplicant. McCarthy and Prince’s (1995) Base-Reduplicant Correspondence Theory is shown in particular to predict unattested types of opaque reduplication phonology. The apparent phenomenon of “backcopying,” where a reduplicant influences the base, is shown to be due to factors other than BR-Identity.

The brief Chapter 6 presents two cases (Tagalog, Chumash) in detail of ostensible back-copying. Since backcopying is impossible in MDT, these are crucial cases. IZ offer alternative analyses of the data, showing how MDT can handle the facts.
Chapter 7 reviews the differences between morphological reduplication and “phonological copying.” They do not like to call the latter reduplication, since the conditions are distinctly different in the two cases. This was also covered in Chapter 1, but here IZ expand and illustrate these in much more detail.

**Evaluation**

This is a distinctly different theory than the well-known Base-Reduplicant Identity constraints of McCarthy and Prince (1995), in which the reduplicant phonologically copies the base, though either can undergo phonological modifications. It seems that IZ deal with a much broader and more complete set of data than do McCarthy and Prince. It is quite well documented, with data from over 120 languages.

Occasionally, like other books which cover an abundance of territory, the generalizations have problems when one tries to apply them in detail to specific cases. In a case of underapplication in Javanese (pp. 137ff. in IZ), /a/ raises and backs to /ɔ/ in word-final position, as seen in (8a, b) below. When the base word is reduplicated, as in (8c), then raising happens in both copies. The problem is in (8d), where raising does not happen.

(8) a. medja-ne ‘his/her table’
   b. medjɔ ‘table’
   c. medjɔ-medjɔ ‘tables’
   d. medja-medja-ne ‘his/her tables’

In this case, IZ argue that in (8c), the daughters are bare stems, and so the word-final raising occurs. The constraints causing word-final raising must thus be present in both of the daughter cophonologies. In (d), the input of both daughters is /medja-ne/.

(9) Opacity by truncation (from IZ:138)

\[
\text{medja-medja-ne} \\
\downarrow \\
\text{[medja]} \quad \text{[medja-ne]} \\
\downarrow \\
/\text{medja-ne}/ \quad /\text{medja-ne}/ \\
\text{mother cophonology} \\
\text{daughter cophonology}
\]

In the second daughter, the /a/ is not word-final, and no raising occurs. But the first daughter cophonology truncates the first daughter from medja-ne to medja. Why then does raising not apply to the first daughter? Because in the input, /a/ is not word-final. However, the OT constraints for raising are surface-true constraints, and if the output /a/ is word-final, then it should be raised. It appears that IZ have unconsciously assumed a bit of unwanted extra serialism here. For the above to work, the constraints giving /ɔ/ must apply before the constraints that truncate the first daughter. But their MDT theory only allows serialism in that the daughter
cophonologies apply before the mother cophonology. Note that if Javanese were analyzed as /ɔ/-lowering rather than /a/-raising, a possibility IZ note in a footnote, then MDT would work with no further complications.

For the most part, IZ adequately defend MDT against alternate views, but not always. When discussing why only the consonants rather than the full set of suffixes of causative and locative suffixes surface on the first reduplicant in Javanese, IZ mention the possibility of one morphological solution, but never discuss why they reject it, saying only that they adopt a different hypothesis (p. 140).

The volume is in general well edited, though on page 13 we are promised constructions for both compounding and truncation, but truncation is not included (it must have been truncated…). Misspelling typos occur on pages 16 and 43. The Index of Names (i.e. authors cited) and the Language Index are both wonderfully useful, though neither is perfect (at least one reference to A. Saperstein as an author and Dakota as a language are omitted). The subject index is only a bit over three pages, and could helpfully have been expanded significantly. I penciled in a few entries myself.

In a volume of this scope, there is inevitably some unevenness of coverage, and occasionally one could wish for yet more detailed presentation of data or explanation of reasoning. However, the authors have done a remarkable job in presenting a new theory, showing its advantages over its main competitors with an abundance of data from quite varied languages around the world.

References


