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Doubling as a Sign of Morphology: A Typological Perspective

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Abstract

The main goal of the paper is showing that there are three different kinds of iterative phenomena in languages: phoneme reduplication, not analyzed here, reduplication, and repetition. The phenomena differ on the basis of the grammatical components involved and therefore have very different effects. My work argues that reduplication is first and fore-most a formal phenomenon. It can involve several kinds of meaning, some of which of very iconic origin, but all the meanings get encoded grammatically. Then, phrases can be iterated, as well, and they are candidates for repetition. I take repetition to have an exclusively iconic function, basically with a single meaning: emphasis. No formal aspects are involved here. I insert the preceding generalization in the wider framework of the Parallel Architecture (Jackendoff 1997, 2002).

Keywords: typology, reduplication, morphology, syntax

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1. Introduction

The framework I adopt in this work is based on Jackendoff (1997, 2002). In this framework, grammar is constituted by independent generative components, namely syntax, phonology, and semantics, linked by interface rules. In other words, this approach proposes a non-directional idea of grammar. All three constituents are in fact computational components, so that phonology and semantics are not mere interfaces, as argued for in syntactocentric approaches.

In this work the iteration of grammatical units is considered. Three main kinds are identified, depending on which unit is iterated.

The first one I shall term phoneme reduplication, and it includes cases such as the following:

(1)	a. Italian	ciao ciao	‘bye bye’
	b. English	bye-bye	

The second one is reduplication proper. Some examples are reported below.

(2)	a. Japanese	hore	‘fall in love’
		hore-bore	‘fondly’
	b. Turkish	mavi	‘blue’
		mavi mavi	‘in spreads of blue’
	c. Indonesian	buku	‘book’
		buku buku	‘books’

The third class of phenomena is that of repetition, as I term it here.

(3)	a. Italian	bello bello	‘nice nice’
	b. English	nice nice	
	c. Finnish	koti koti	‘house house’ (= real house)

I briefly sketch the characteristics of these three phenomena, which is widely treated in the following chapters.

Phoneme reduplication is the mere repetition of phonemes, where no morphological operation takes place but, also, basically no meaning is added. In this paper I do not study the issue in full detail, remitting it to more specific studies. The main target of this work lies in the difference between the other two phenomena.

Reduplication proper is a strictly grammatical phenomenon. It changes the grammatical features to the aspects to which it is applied. The operations are of merely formal nature: aspectual modifications, formation of plural and categorical derivation. The inventory of the functions of reduplication does not however end here, as shown above. So, it is the iteration of a unit at the X-level or under. More specifically, it is the repetition of a word, or stem, or root, that is to say, of morphemes (full reduplication); furthermore, reduplication predicts the iteration of prosodic units (partial reduplication).

Repetition has an exclusively iconic function, basically with a single meaning, emphasis. No formal aspects are involved here. Repetition is the iteration of units above the X-level. Within this category fall in fact words that have already undergone word-formation rules and are available to syntactic operations. Phrases can be iterated as well and they are candidates for repetition.

As I intend to insert the preceding generalization in the wider framework of the Parallel Architecture (Jackendoff 1997), the organization of the processes is expected to be as follows.

Phoneme reduplication is a merely phonological operation, confined in the phonological formation rule component and with no interface rule having any role whatsoever.

Reduplication proper is a phenomenon that takes place as an actual derivation, as a syntactic formation rule. A phonological structure- syntactic structure interface (PS-SS) rule takes care of the phonological operations that are present in most cases, e.g., linking

markers but also more unexpected phonological facts. Full and partial reduplications are differentiated at this point. The semantic formation rules, alternatively called conceptual structure (CS) formation rules, will be devoted to the rendering of the meaning of the derivation itself.

Repetitions are, surprisingly, of more controversial nature. While mainstream generativists would claim that a derivation in syntax is needed, I maintain that a repetition is the result of a phonological structure-semantic structure interface rule, with an inactive syntactic side.

The proposal, therefore, implies a series of differences between reduplication and repetition. The first series of distinctions are of phonological nature. In reduplicative processes, accents or tones are re-analyzed phonologically; in repetition this does not happen. The same holds for the possibility of insertion of epenthetic material between the two iterating units and the application of readjustment rules.

Morpho-syntactically and semantically speaking, it is crucial to draw a series of differences. The possibility of inserting linking elements, to begin with, is available to reduplication and ruled out in repetition. Another point of distinction is represented by the presence of internal inflection: nouns are not found in the plural form, for example, and verbs are not inflected in reduplication, while such processes are allowed in repetition. Then, reduplication can undergo constraints of morpho-syntactic nature, and they can show limited productivity; this is not the case for repetition. Furthermore, there are cases of semantic drift and idiosyncratic phenomena that are found in reduplication and not in repetition.

Accordingly, in fact, repetition represents an instance of proto-language in Jackendovian terms, i.e., as a subsystem of modern language and not a totally unrelated system, as it is conceived in mainstream Generativism. Proto-language allows a direct interface between phonology and semantics, which is exactly what repetitions

are claimed to be here.

Significantly, it has to be pointed out that, cross-linguistically speaking, while it is possible for units below X (reduplication) to be iterated to achieve non-formal effects, it is not possible for units above X (repetition) to be iterated for formal effects.

The topic of iconicity is another crucial issue, since it explores the interaction mentioned at the beginning of this introduction, that is to say, between linguistic structures and non-linguistic structures. In this work I consider iconicity as useful to the purposes of the study of repetition, connecting the topic with the role of iconicity in sign languages (SLs).

It has to be remarked that the patterns attested in spoken languages are found also in a remarkable sample of sign languages, suggesting a universal character of the generalization presented. Data for SLs are given in this work to support these claims.

2. A New Account of Reduplication

2.1. Three Types of Iterations

Sapir (1921: 76) observes that:

> Nothing is more natural than the prevalence of reduplication, in other words, the repetition of all or part of the radical element. The process is generally employed, with self-evident symbolism, to indicate such concepts as distribution, plurality, repetition, customary activity, increase of size, added intensity, continuance.

This definition contains the characters of all the three kinds of iterative processes argued for here, without however supplying the differentiation that appears crucial after having looked at a big

sample of data and languages.

While the enumeration and analyses of the different meanings of reduplication and repetition is in the following chapters, in this paragraph I sketch out the main aspects used to distinguish between phoneme reduplication, morphological reduplication, and repetition.

As a first rough definition, we could say that phoneme reduplication occurs when two words are repeated but there is no change in meaning. In other words, the semantics stays inactive.

(4)	a. English	bye-bye
		choo-choo
		poo-poo
		so-so
		tsk tsk
	b. Italian	ciao ciao

I call it phoneme reduplication and not phonological reduplication for ease of distinction. In fact, phonological refers more to the set of rules that are contained in the phonological component of the three; this kind of reduplication, instead, seems to have no structure commanding the doubling. We might compare it to the phonological doubling of Inkelas & Zoll (2005). In morphological reduplications as it is characterized here, in effect, reduplicants appear to be entirely describable in phonological terms: the morpheme is not specified with respect to its segmental form, as its phonological form depends on the form of the base. Nevertheless, it is clearly a word formation procedure without strictly phonological motivation. The motivation for the first type of iterative phenomena, instead, has clearly to do with the phonemes, hence, the name. By defining phoneme reduplication as such, I distinguish it both from reduplication proper, where there the iteration of phonological material is grammatically relevant, and repetition, where a semantic process goes on, but no change is found in the reduplicants.

Here, what happens is a segmental change that does not correspond to any specific meaningful process. More in detail, phoneme reduplications are the recurring forms, possibly with some segmental change, not serving any grammatical or semantic function that could be served by some inflectional or derivational operation, supplying instead no semantic contribution or little, like an emphatic one.[1] So, phoneme reduplication is a purely PF (phonological form) phenomenon, which has an emphatic function at most.

There are however several kinds of iterative phenomena with much more complex aspects and characteristics. The first one is represented by iterations of a whole word that do result in a change of the grammatical meanings of the new compound, as in the already mentioned. There are category-shifting iterations.

(5) Italian [V+V]N lecca 'lick' lecca lecca 'lollipop'

Also, there is pluralizing iterations.

(6) Indonesian buku 'book' buku buku 'books'

This kind of reduplication is proper reduplication in the sense that

[1] Note that from the definition are excluded forms that have elsewhere been said to be just of phonological nature (as in Thun 1963): *bon-bon, chop-chop, dum-dum, fifty-fifty*. The list of these examples might be longer. They have been previously described as 'baby-talk-like' (Holm 1988). However, several comments are at stake if every single example is considered: actually none of them can be truly considered a mere repetition of phonemes. *Bon-bon* is actually a word of French origin, and even in French the process is more complicated than what it appears at first. In fact, the adjective *bon* is reduplicated giving rise to a noun; [[bon]A + [bon]A]N. An analogous process goes on in *chop-chop*, where *chop* means 'to cut,' but *chop-chop* becomes a mere interjection. *Dum-dum* calls clearly for an onomatopoeic explanation, similarly to *knock knock* (and anyway the base is a verb here while the reduplicated word is not). In *fifty-fifty* the reduplicant is originally a noun or an adjective, but the output is in any case adjectival or adverbial.

the process of reduplication can affect the strictly grammatical features of the lexical item, while not just including semantic processes such as intensification, augmentation, attenuation (Uspensky 1972), i.e., processes just pertaining to the conceptual system. Notice, in fact, that in the Japanese examples, reduplication is used to change category ([V+V]Adv), as well as in the Turkish and English one ([V+V]A and [A+A]Adv); in the Indonesian example it is used to form plural.

In these cases, the word is repeated entirely so that no phonological change intervenes a part from the unproblematic doubling.

The types can be however different. Observe the following examples.

(7) Chuckchee (Marantz 1982: 451)

nute	'earth/ground'
nute-nut	'earth/ground' (absolutive)

(8) Chamorro (Topping 1973: 326)

dankolo	'big'
dankolo-lo	'really big'

(9) Pima (Riggle 2003: 5)

mavit	'lion'
mamvit	'lions'

(10) Semai (Nelson 2003)

cruha:w	'sound of waterfall'
cwcruha:w	'monsoon rain'

The preceding examples represent cases of partial reduplication, while the examples in (5-6) are generally termed as total or full reduplication.

These examples represent the iteration that, in this work, is said to

be the one (and the only one) of derivative nature. This is doubling of morphological units, i.e., pieces of grammar under the X-level, that results in a series of grammatical effects and encodes grammatically any change in meaning. For this reason, as introduced, as series of consequences due to their grammatical nature is expected, and actually found, such as changes in stress and tonal patterns (phonology), readjustment rules (morpho-phonology), absence of internal inflection (morpho-syntax), semantic drift, and idiosyncrasies (semantics), and so on.

On a systemically higher level, in fact, identical words or phrases can be juxtaposed. This level has often been termed as "syntactic reduplication."

This type does not serve lexical or inflectional purposes, and does not form new words. This is why it has also been termed repetition (Gil 2005, see below), the definition adopted here.

(11) a. Italian piano 'slow'
piano piano 'very slow'
b. English very, very good
c. French Il est beau, beau, beau, mon pays.
'It is nice, nice, nice, my country.'

These examples are analyzed as the juxtaposition of Xs, or XPs, each bringing their conceptual content. No derivation is said to happen here, the juxtaposition being also that of the concepts themselves though an interface rule between phonological structures and conceptual structures.

Particular mention deserves so-called contrastive repetition (e.g., English: a coke-coke): it is pervasive in the languages of the world and it conveys the meaning of reality and originality of a special entity, typically a product, as opposed to another: examples are found in Italian or in Finnish:

(12) a.	Italian	un vino vino	‘a wine wine’
b.	Finnish	koti	‘home’
		kotikoti	‘parents’ home’ (as opposed to one’s current place of residence)

Interestingly enough, in such examples the reduplicating process comes after inflection:

(13) Menetkö kotiin vai kotiinkotiin?
‘Are you going home or home-home?’

This, crucially, substantiates the view that such repetition is not morphological but comes after the spellout.

Repetition is different from other reduplicative processes in several ways. First, it may take constituents larger than a word. The repeated constituent is a verb and its object:

(14) I don’t like him-like him.

Secondly, the level of constituency relevant for reduplication is syntactic, and not phonological (cf. Fitzpatrick-Cole 1996, who suggests a prosodic account).

Syntactic and prosodic constituency often coincide, since the latter is based on information about the former, but there are cases where prosodic constituents do not obey syntactic constituency. In cases of such mismatch, repetition still respects syntactic constituency.

For example, cliticization processes in English can create prosodic constituents that do not correspond to syntactic constituents. Ghomeshi et al. (2004: 88) point out that the form in, while it corresponds to a legitimate prosodic constituent, is not well-formed as a repeating element:

(15) ‘I wouldn’t date a linguist.’
a. I wouldn’t date=a linguist.
b. *I wouldn’t date-a–date-a linguist.

The generalization is that repetition may take a constituent as small as X and as large as XP, where X is some lexical head.

All in all, the preceding denotations show that no operation on grammatical features is involved as the repetitions are operated: semantics is only affected by changes.

What has been described so far, to summarize, is a phenomenon that has nothing to do with derivations and look much closer to proto-language, where two components interact without the mediation of syntax: phonology and semantics. I intend to show here that repetitions are formed under the request of semantics, in order to emphasize the meaning, following a sort of rule of construal. Such rule of construal commands the conceptual structure to be iterated if emphasis is at play.

Emphasis can be declined in the augmentation sense (*un ragazzo bello bello* ‘a cute cute guy’) and in the contrastive sense (a wine wine), without difference in the general machinery.

The consequence of being the simple iteration, i.e., juxtaposition, of already formed conceptual structures is that of not undergoing the restrictions of a derivation, including readjustment rules, linking elements (phonology), possible lexical insertion and internal inflection (morpho-syntax), and no availability to semantic drifts (semantics).

2.2. Distinguishing Criteria

The great lack of homogeneity in the study of reduplication arises from the undifferentiated treatment of the words “reduplication” and “repetition.” How are two processes related and how is it possible to coherently analyse them separately? In this section, it is explored a

series of criteria that have been proposed throughout the years to distinguish them, ultimately arguing that the solution to such terminological issue is the very discriminating factor between reduplicating phenomena found in morphology (at X level) and in reduplicating phenomena found in interfaces.

Thun (1963) proposes three criteria to distinguish repetition from reduplication using *pretty, pretty* and *pretty-pretty*: (i) a phonetic/ prosodic difference, e.g., *prétty-prétty* vs. *prétty-pretty*; (ii) a morphological criterion, e.g., the possibility of plural for *pretty-pretty*, 'pretty-pretties'; (iii) a semantic difference, since the repeated adjectives 'pretty, pretty' preserve their basic meaning, while reduplicative *pretty-pretty* becomes derogatory (non-compositionality, notice, is typical of morphology and not of upper level formations).

A crucial point needs to be made here. The difference in (ii) and (iii) is not a morphological or a semantic difference, but the second-order effects of a derivation, namely, a change of category. *Pretty, pretty* is the repetition of two adjectives, but *pretty-pretty* is a noun: as such, it can be pluralised, as in *pretty-pretties,* and gets a second-order meaning. *Pretty-pretty,* coherently, is an instance of reduplication because it has changed the category, supporting the present account.

Diachronically, then, one plausible path to reduplication starts from repetition. If reduplication is grammaticalized repetition, then distinguishing the two requires some criteria. Thun (1963) emphasizes that a reduplicated word has one intonation pattern, whereas repetition consists of two prosodically, phonologically, and semantically distinct forms. Gil (2005) proposes several criteria, e.g., that reduplication is only word-sized, never phrasal. In other words, reduplication can be deemed a morphological process, whereas repetition is a syntactic process (cf. Gil 2005). By adopting the term 'repetition,' Gil distances syntactic reduplication from 'reduplication' (proper). In Gil (2005) a list of distinguishing factors for the two phenomena is provided (from Gil 2005: 33).

Table 1. Distinguishing Factors between Repetition and Reduplication

Criterion	Repetition	Reduplication
1. Unit of output	greater than word	equal to or smaller than word
2. Communicative reinforcement	present or absent	absent
3. Interpretation	iconic or absent	arbitrary or iconic
4. Intonational domain of output	within one or more intonation group	within one intonation group
5. Contiguity of copies	contiguous or disjoint	contiguous
6. Number of copies	two or more	usually two

Contrary to Gil, Inkelas (2008) argues that phrasal doubling can and should be treated as the same sort of operation as morphological reduplication.

In this account this idea is rejected, arguing for a distinction of words and phrases that do determine the difference between reduplication and repetition. In this sense, the present account is similar to Gil's (2005) in that it separates reduplication from repetition according to the bases used, i.e., phrases or words. Furthermore, in the present account the term syntactic reduplication is substituted by repetition as in Gil (2005). Nevertheless, the present account takes issue with Gil (2005) in respect to the boundaries of both processes. In fact, Gil proposes that a semantic criterion to draw a distinction is that repetition is devoid of any meaning whatsoever: when it does carry a meaning, repetition is a communicative reinforcement or has an iconic character, "involving concepts of intensity, plurality, and iterativity" (Uspensky 1993). In contrast, reduplication is said to be associated with particular meanings. Such meanings are often cross-linguistically similar, and this is said to be a difference from grammatical morphemes, which

vary unpredictably from language to language.

2.3. Reduplication as a Strictly Formal Device

Reduplication, in this work, is conceived as a grammatical mechanism that results in a series of different meanings. These meanings, i.e., the functions of reduplication, cover a fairly wide range of possibilities. Reduplication is a derivation that finds paring with a conceptual structure function adding and with the iteration in grammar of its own full phonological content.

In any case, of primary relevance is the fact that this phenomenon is a grammatical one, which codifies in no way other than the formal one a meaning. The derivation, furthermore, is said to be a morphological one, in the sense of under the X level.

In this view, I am not defining reduplication as the iteration of a morphological unit but as the iteration inside a morphological unit before it is available to higher syntactic processes. Reduplication is the doubling of a morphological category, a root (16a), or a stem (16b).

(16) a.	Afrikaans	kort	‘short’
		kort kort	‘every now and again’
	(Botha 1988: 118)		
b.	Italian	lecc-a	‘lick’ (root + thematic vowel)
		lecc-a lecc-a	‘lollipop’

Nevertheless, it is not the case that morpheme integrity is always respected.

(16) c.	French	mere	‘mother’	mémère	‘mum’

The units that are reduplicated seem to undergo more phonological rules than morphological integrity constraints; such rules, tendentially, appear to be prosodic and not segmental.

For all these reasons, I propose it is a parallel process. This is why it is not crucial, to understand reduplication, if it is full or partial. The parallel architecture, being derivation while not disallowing the possibility of a constructional component is the best suitable to make sense of a series of basically akin but vastly differentiated (form-wise and function-wise) phenomena like full and partial reduplication. In either case, reduplication is a matter below X. As a consequence, it displays all the characteristics of processes under the X-level, which can be subsumed in, but not reduced at its wordiness.

Phonologically, in fact, reduplication gives rise to words that have their stress or tonal pattern re-analyzed. Reduplicated items also undergo readjustment rules, insertion of epenthetic material between the two constituents, and so on.

Morpho-syntactically, reduplication displays the insertion of linking markers between the two constituents, banning on internal inflection, restriction of the morpho-syntactic types and limited productivity in several instances.

On the semantic side, processes of semantic drift and idiosyncratic results are found.

As far as the meanings are concerned, they can be utterly grammatically or show iconic semantics. Initially, and in a very spread fashion, they can be extremely iconic looking, and iconically rooted. This is the case of increasing reduplication, where reduplication is a function that applies both to nouns and verbs (and actually also to adjectives), unbounding their conceptual structure, fundamentally, and adding some internal structure to the unbounded entity resulting. Conceived as such, reduplication is the same tool in plural and the so-called increasing aspect. Adjectives are also augmented, i.e., increased, in their meaning, by the application of a reduplicative process.

However, very oppositely, reduplication can have a diminutive function with nouns, verbs, and adjectives, in a really counter-iconic fashion. On the strictly grammatical side of the matter, reduplication

is also a categorical-shifting device. Finally, it brings about a series of other functions, such as argument saturation (again, a very formal effect), and so on.

2.4. Repetition

Repetition is a iteration of concepts, essentially. A conceptual structure, associated with a syntactic structure and with its phonological structure, calls for the iteration of itself. This results in a doubling of this very conceptual structure, but no derivation is operated in syntax: the syntactic structures, in repetition, are only juxtaposed, as a consequence of repeating them phonologically. The phonological structures are iterated wholly, also.

Repetition is a semantic driven construction type with non-formal effects, and takes place at units higher than the morphological ones. It is considered in this account to be semantically driven for the following reasons. Repetition is the iteration of two conceptual structures on the first place; the effect is not that of a syntactic derivation, and is not a grammatical meaning by any perspective. This is why I consider repetition one of the instances in which semantics seems to ask for a richer power than the one that is attributed to in Minimalism, for example.

Let us see why repetition has not formal effects. The trigger of juxtaposition is the iconic more of the same mechanism already introduced. The mechanism by which more of the same material of a units of language is used to achieve a more of the same meaning has possibly extra-linguistic roots, being absolutely iconic. So, repetition is used only for iconic purposes: those of emphasis. I intend to claim here that repetition is of one single kind, that can be further divided in two kinds. Namely, repetition has an emphatic result, and emphasis can have two (main) shades.

The first variety of emphasis is that of augmentation. When repetition refers to verbs, it means that the event is repeated. When it

is applied to nouns, it means more of the same of those objects. When it is applied to adjectives, in general, their scale is augmented.

(17) a. Italian Lui rise rise rise…
'He laughed, laughed, laughed…'[2]
b. Italian Ho visto solo macchine macchine macchine…
'I saw just cars, cars, cars…'
c. Italian Si tratta di un ragazzo bello bello.
'That's a cute cute boy.'

The second variety of emphasis is that of contrast: one conceptual structure is contrasted with another, but by means of emphasis.

(18) a. Italian Si tratta di vino vino, non di vino in brik.
b. English That's wine wine, not boxed wine.

The two varieties of repetition have different pitch intonations, the first one (17a-c) being rising all the way, the second one (18a-b), peaking. They're also differentiated by the fact that augmentation can have (potentially) never-ending iterations of the structure at stake, while contrast exhibits just two.

In any case, on the whole, repetition has an empathic effect of some kind. It does not make reference to the grammatical features of the unit, and does not even interfere with formal semantics notions: this is why I consider the meanings of repetition as non-formal.

Additionally, repetition does not deal with morphological units but with units from X on. In doing so, repeated formations are expected to reject all the constraints that are typical of morphological formations, i.e., formations taking place on the syntactic component to begin with.

[2] In this section I use mainly examples from Italian and English, for convenience.

Actually, they do. Phonologically speaking, repeated formations do not need to respect any word stress pattern or tone pattern.

(19) Krio (Nordlander & Shrimpton 2003: 133)
a. àlà álà ‘a quarrel’
b. álà álà ‘to shout and shout’

In (19a), the initial high tone is replaced by a low tone, so that the high tones are kept just as in the first and in the last segment, to mime the base; so, the original tonal form *álà* is changed in the reduplicant to respond to the tone requirements of the language; this is unnecessary in (19b), a case of repetition.

Repetition also does not undergo readjustment rules, differently from reduplications. In a morpho-syntactical view, they reject the restrictions coming from the lexical integrity largely attributed to morphological units. Repetition, for example, can be internally inflected:

(20) a. Italian Ci baciammo, baciammo, baciammo…[3]
b. English We kissed, kissed, kissed…

Moreover, repeated formations do not show the presence of linking elements.

Semantically speaking, it makes virtually no sense to disallow the repetition to one particular concept to another particular concept, though world knowledge factors might come into play.

Productivity, furthermore, is unlimited within the constraints of repetition, that are phonological and semantic (see below). Thus, provided that reduplication is instead doubling at the level of word formation, the difference with reduplication is massive.

[3] I do not differentiate the augmenting/contrastive subtypes, picking out one randomly, unless relevant.

In general terms, what triggers the construction is semantics, the conceptual structure, for reasons that I clarify below (in a nutshell, the conceptual structures require more of the same and does it by iterating the concept); the phonological structure accompanies it, by possibly contributing. The same is true for the syntactic derivations, each accompanying the other two kinds of systems but actually outside the real process: they stay untouched.

In reduplication, an initially iconic process has formal effects. In repetition, it does not, ever. The fact that reduplication is a derivation, and repetition is not, is reflected on the conceptual structure component, which brings into play two different kinds of structures.

The driving of reduplication and repetition is originated differently. Reduplication is a derivation mainly, that takes its piece of phonology and its piece of semantics with it. Repetition is originated from semantics. A structure is required to modify another because its modification will bring emphasis to it, possibly for principles that cross the linguistic borders. As originated from semantics, it undergoes semantics constraints, and, coherently, phonological constraints: in sum, the constraints derive from the two components involved. No syntactic constraints come into play with repetition.

3. Reduplication and Repetition Signed

3.1. Sign Languages: General Notions

The primary theoretical issue represented by the application of linguistic theory to SLs is represented by the universality of language mechanisms. This issue has held, and continues to hold, a central place in (psycho)linguistics research. Universal features of languages have always been seen, in the generative tradition, as the

factors distinguishing humans as unique. The question of modality is, under this view, an important test of universality. To the extent that language mechanisms are modality specific, they may represent properties of the sensor and motor system rather than properties unique to language.

This work aims to take issue with this very view: providing examples of analogous behavior in reduplicating phenomena between spoken and written languages, which both display the same patterns, support to the language universality, and therefore language specifity, is given.

This study of reduplication across the medium is not, in fact, an isolated example of such universality. The general conclusion from psycholinguistic studies consists on the fact that a little amount of mechanisms are modality specific. In the vast majority of cases, in fact, it has been shown that the major structures and processes of grammar are modality independent (Klima & Bellugi 1979, Lane & Grosjean 1980, Kyle & Woll 1985, Newport & Meyer 1986).

In the following paragraphs, a brief overview of the basic tenets of SLs is presented. However, the exact description of the characteristics of SLs is not directly relevant here; moreover, SLs differ from each other in so considerable respects that an exhaustive description of their grammar is at best approximate.

The international database Ethnologue enumerates 114 SLs, from the wide-spread ASL, with its 500,000 signers, to Adamorobe Sign Language, used in a village in Ghana and spoken by just 300 signers.

The preliminary assumption, supported by a large body of research, is that SLs share with all other languages universal principles. In this view, identifiable structural difference between spoken languages and signed languages can be attributed to modality effects alone.

As a first grounding observation about terminology, it is worth noticing that the term ‘sign’ is crucial as a label for the units of these

languages. Other expressions, such as *gestures* or *mimic-gestual forms*, are used in other contexts, for instance in pantomimes or even in the very gesture activities, parallel to signing but fundamentally separated from it. There is not continuum between signs and gestures, and gestures are not discrete (see below).

The sign, intended in the Saussurian sense as any semiotic element with a meaning, is characterised by biplanarity: one side for signifier, and one side for the signified.

A language, anyway, is different from other communicative systems, such as the pantomime, for some peculiar characteristics. Despite a closed set of characteristics of human language has not been yet completely elaborated, some of them are generally assumed as founding, in generative grammar: discreteness, recursion, structure-dependence, and locality. All SLs share these characteristics with spoken languages. Other peculiarities, such as the arbitrariness of the sign, are equally found in spoken and signed languages. The relationships between iconicity and arbitrariness in signed languages are undeniably different from those in spoken languages, since signed languages exhibit more iconicity effects. Different explanations have been provided for that, including the possibility of SLs of representing concepts visually, the simultaneous dimension, and so on (cf. Russo Cardona & Volterra 2007 for specific treatment).

In any case, SLs are not mutually intelligible; more compellingly, furthermore, studies on neuropsychological bases on signed linguistic activity show that the brain areas involved in signing are the same as those involved in spoken language (Poizner et al. 1987), despite the fact that signers show a greater involvement of the right hemisphere, linked to the visual perception (unsurprisingly, provided that SLs rely more on the sight). This point is crucial to the present discussion about reduplication and repetition; at a certain point, in fact, language proves to be independent from modality.

As far as phonology is concerned, the distinctive features of signs are location, hand configuration, hand orientation, and types of

movement. These features, simultaneously realised, give place to a sign. In this sense, they could be compared to the phonemes of spoken languages. For instance, many signs differ from one another through different choices of a given articulatory feature. EARLY[4] differs from ANGRY only in hand configuration, PICTURES (movies) differs from WAR only in location, and ONLY and NOW differ in finger and palm orientation (Siple & Fischer 1990: 284).

However, phonemes of spoken languages consist of distinctive features on their own, while in SLs they seem to be minimal units. However, if we adopt the hand-tier model proposed by Sadler (1989) for ASL, the skeletal units will be linked to location and to movement features, and each of both classes will be further divided, respectively, into position, manner, and place classes, and into shape, manner, and position classes. In this light, SL phonology and spoken language phonology would be very similarly organised, a part from the simultaneity of SL phonemes. Pending clarification, this issue is left to further study.

As far as morphological concepts are concerned, just the major outlines are sketched, being a full description unnecessary to the present investigation.

In the 1970s and 1980s, researchers noticed that SLs have complex morphology. Further research showed that this morphological structure is simultaneous, in the sense that the different morphemes of a word are simultaneously superimposed on each other rather than being strung together, as in spoken languages. As sign-language research expanded to include more linguistic structures as

[4] A word on the basic gloss notation used for signs is at stake here. Words in capital letters represent English glosses for signs (e.g., SIGN). The gloss represents the meaning of the unmarked, unmodulated, basic form of a sign out of context, while multi-word glosses connected by hyphens are used when more than one English word is required to translate a single sign: for example, LOOK-AT. Finally, words within single quotation marks indicate the meaning (SIGN 'sign').

well as more SLs, several generalizations emerged. First, all the SLs studied were found to have this particular kind of morphology. Second, the grammatical categories encoded by many of these morphological structures, as well as the form that they take, were found to be quite similar across different SLs. That is, SLs show strong cross-linguistic similarities in their morphological structures. Basically, morphological processes of signed languages tend to be agglutinative. More specifically, SLs exhibit two radically different morphological types in their grammars. On the one hand, they have complex morphological structures, verb agreement, classifier constructions, and verbal aspects, to name a few. Depending on the particular analysis, a single verb may include five or more morphemes. For example, the ASL verb LOOK-AT may be inflected for subject and object agreement as well as for temporal aspect, and it could be accompanied by a grammatical nonmanual (e.g., facial) marker that functions as an adverbial. Such a verb, meaning, for example, 'he looked at it with relaxation and enjoyment for a long time,' consists of five morphemes. On the other hand, some SLs, ASL and Israeli Sign Language (ISL), also have simple affixal morphology (for more detailed discussion on this matter, cf. Aronoff et al. 2005).

Nouns are divided into two classes: the signs of the first class are anchored in a location on the body of the signer, while the nouns of the second class are in the so-called neuter space.

Two central sign language morphological formations are verb agreement for person and number of subject and object in a semantically defined class of verbs (mostly with modification in movement), and a system of polymorphemic classifier formations that combine nominal classifier hand shapes with path shapes, manners of movement, and location.

While the morphological structures of SLs have common aspects, the syntactic characteristics of SLs differ dramatically. The syntax of SLs is still in course of study, but, roughly, it is possible to say

that syntactic word order is completely separated from that of the spoken languages of the areas they are signed in.[5] For instance, Japanese Sign Language (*Nihon Shuwa*) is SVO, the spoken language being one of the most consistent examples of SOV constituent order, whereas Italian is SVO but LIS (*Lingua Italiana dei Segni*, Italian Sign Language) is SOV (21a). In this language, determiners and quantifiers are postnominal (21b), as well as negation (21c), WH- formations (21d), and so on. Moreover, all functional categories within the clausal domain are located postverbally. The aspectual marker DONE, which marks the verbal action as completed, occurs after the verb, as in (21e). Modals are also located postverbally, like in (21f).

(21) a. DOG CAT CHASE
'The dog chases the cat.'
b. STUDENT THREE
'three students'
c. DOG CAT CHASE NOT
'The dog does not chase the cat.'
d. CAT CHASE WHO
'Who chases the cat?'
e. DOG CAT CHASE DONE
'The dog has chased the cat.'
f. DOG CAT CHASE CAN
'The dog can chase the cat.'
(Branchini & Donati 2009)

These properties are consistent with the head-complement parameter, demonstrating that SLs are ruled by the very same principles of

[5] There is no exchange between spoken languages and signed languages, but this is not surprising since, differently from the lexicon, syntax does not lend itself to interlinguistic exchanges.

spoken languages and, moreover, foundations of core language are universal and non medium-specific (so, possibly innate).

3.2. Reduplication in Sign Languages

In this section SLs are analysed in order to demonstrate that, across the medium as well as across the languages, morphological reduplication only affects strictly grammatical features and can be distinguished by other kinds of reduplicating phenomena on this basis.

SLs offer interesting insights in the study of reduplication also because the possibility to make a clear-cut distinction between reduplication and "surface repetition" (Bellugi & Klima 1979) uncover empirical evidence supporting the present idea of reduplication proper as a strictly grammatical mechanism. As a matter of fact, in SL it is possible to distinguish reduplication and "surface" repetition since reduplication refers to cyclic phenomena that accompany modulatory processes, phenomena such as cyclic reduplication, triplication, iteration, while repetition refers to phenomena that occur with uninflected lexical items, such as oscillation and wiggling. It is visually possible to distinguish between reduplication and repetition. For example, in Swedish Sign Language (*Tecknad Svenska* (SSL/TS)), the sign for WAIT consists of one repetition of the root, but if the sign is reduplicated, the root sign is repeated three times.

(22) WAIT WAIT
WAIT WAIT WAIT 'be waiting/wait for a while'
(Bergman & Dahl 1994: 402)

Wilbur et al. (1983) argue that the default phonological duration of movement is short and that repetition is an 'elsewhere' phonological condition, i.e., it occurs when nothing else has made

the form phonologically heavy enough to perform its prosodic function. Thus, the reason for repetition in SLs can also be seen as phonologically determined.[6]

There is however a stronger distinction between repetition and reduplication in SLs. Repetition does not include any change in the sign features: the manner of articulation and the location remain the same in the two repeated movements (and the function of this process will just be at a conceptual level, as explained in the following paragraphs). Conversely, reduplication tends to affect features, for instance the manner of formation: in the ASL (American Sign Language) verbal derivation, as observed by Supalla & Newport (1978), or, as pointed out by Pfau & Steinbach (2006), in DGS (German Sign Language, *Deutsche Gebärdensprache*) with backward or sideward moves (see below) expressing pluralisation. This difference is crucial because it is reflects the spoken language characteristic of having the lexical item modified at the X level and not at upper level.

Therefore, SLs provide a clear set of data in which reduplication is at work, and these data, crucially, all involve exclusively grammatical processes.

The processes performed by reduplication are, in general, the same as those found in spoken languages, i.e., noun-verb derivations and conversions, habitual, iterative, and continuative aspects, and plurality.

As to the first one, in ASL, new nouns can be formed from existing verbs on the basis of a particular pattern, i.e., repeating the movement related to a verb. For example, the verb GET made with smaller repeated movement means "acquisition." Notice that is a category-changing process and, significantly, the meaning is not

[6] Interestingly, in any case repetition seems to have to do with levels of representations and not with derivational components, as reduplication does. The issue is of interest, but the exploration of its implication is beyond the aims of this paper.

compositional, a characteristic of morphological processes and not of syntactic processes. Other examples of this kind:

(23) [V+V]N

JOIN JOIN	'compound'
TO QUOTE FROM TO QUOTE FROM	'derivation'
COMPARE COMPARE	'comparaison'
(Klima & Bellugi 1979)	
COVER-UP COVER-UP	'paper'
CHECK CHECK	'research'
(Perlmutter 1990: 80)	

The noun sign needs at least one repetition of the basic movement, whereas the verb does not require it. Crucially, repetition of the sign is insufficient to derive nouns from verbs: there must also be a concomitant change in the manner of formation. Whether the verb is continuous or holding,[7] Supalla & Newport (1978) indicate that the verbs tend not to be restrained, while the correspondent nouns are (a single long movement versus two short ones). Observe the following examples:

(24) [V+V]N

FLY FLY
unidirectional continuous → unidirectional restrained 'airplane'
SIT SIT
unidirectional holding → unidirectional restrained 'chair'
DRIVE DRIVE
bidirectional continuous → bidirectional restrained 'car'

[7] In Supalla & Newport (1978) two basic types of sign movements are identified, unidirectional and bidirectional. Within the category of unidirectional, they identify three types, i.e., continuous, holding, and restrained; instead, with bidirectional signs, they identify just continuous and restrained.

Whether a particular sign undergoes reduplication is not predictable; additionally, there are conversions such as the preceding ones, together with reduplication affecting other categories:

(25)	[P+P]V	ON ON	‘warn’
	[Adv+Adv]A	ALMOST ALMOST	‘easy’

This is typical of morphology and not of syntax.

Fundamentally, then, reduplicated verbs that have undergone a conversion process through reduplication and have thus become (deverbal) nouns can be reiterated in a cyclic movement, typically carrying the meaning of “X after X after X” (e.g., *CAR after CAR after CAR*). Such process does not require any other device, such as a change in the manner. It comes after the conversion process, and has no grammatical function, suggesting, coherently, that it is operated after X.

In New Zealand Sign Language (NZSL) several nouns are formed with the reduplication of a transitive verb’s segmental pattern. A phonological joining or sandhi process inserts a movement segment between two contiguous segments with dissimilar articulatory bundles. Then, a phonological fluidity rule deletes hold segments that occur between movement segments. This process seems to be a linking process as those found in spoken language compounding (e.g., *-e* in German *Hundekuchen* ‘dog + biscuit = dog biscuit’), supporting the idea that these formations are under the word level. Other instances of linking elements in sign language reduplication are found in verb aspect (see below).

(26)	[V+V]N	BUILD BUILD	‘hammer’
		CUT CUT	‘scissors’
		GARDEN GARDEN	‘to garden’
		RING-UP RING-UP	‘telephone’
		TEACH TEACH	‘teacher’
		PRAY PRAY	‘Sunday’

MEET MEET ‘meeting’
PROTEST PROTEST ‘strike’
SPREAD SPREAD ‘butter’
TAN TAN ‘leather’
(Collins-Ahlgren 1990: 294)

Notice that, also in NZSL, the meaning of the output word is not retrievable from the meaning of its constituents.

As to aspect, then, ASL adjectival predications can have aspectual modulation with a circular reduplicated form or with an elliptical reduplicated form. Telic predications can become atelic through reduplication. The smooth, continuous, reduplicated circular movement (resulting from a rotary movement at the elbow joint) can be seen in the modulated forms of several signs:

(27) TO GET SICK TO GET SICK ‘to be sick’
TO GET MISCHIEVOUS TO GET MISCHIEVOUS
‘to be mischief-prone’[8]

A transitory or incidental state is thus transformed by reduplication into an inherent characteristic. This modulation is not, as with repetition, an optional expressive change but a grammatical process. Compare (a) with (b):

(28) a. BOY TEND (HIS) ALL-HIS-LIFE SICK-Reduplicated
b. *BOY TEND (HIS) ALL-HIS-LIFE SICK
‘That boy has tended to be sickly all his life.’
(Klima & Bellugi 1979: 253)

[8] Other signs undergoing this process are ROUGH, WRONG, DIRTY, QUIET. Not all adjectival predicates in ASL can undergo this reduplicative process: signs like PRETTY, UGLY, INTELLIGENT, STUPID, HARD, and so on do not. This seems to be due to their lexical semantics: the signs giving rise to grammatical signs refer to incidental or temporary states, while the others do not.

The sign SICK cannot occur in a non-reduplicated form: it follows that also this reduplicative process takes place before the spellout.

Similarly to adjectival predication, ASL verbs have their aspectual properties changed through reduplication. In fact, reduplication is a very powerful device in verb aspect of ASL.

Interestingly, reduplication has different restrictions depending on the stativity/dynamicity and on the telicity of verbs, which, once again, suggest a morphological origin of such process. In fact, state verbs (e.g., *be, look like*) must be reduplicated quickly while processes (e.g., *talk*), achievements (e.g., *win*), and accomplishments (e.g., *reach*) verbs can be reduplicated slowly or quickly; furthermore, in accomplishments and achievements slow reduplication will result in an iterative interpretation (29a), while in processes it means that the action is continued (29b).[9]

(29) a. WIN WIN ‘winning and winning’
b. TALK TALK ‘talk for a certain amount of time’

Then, LOOK-AT, has a punctual form made with a short directional-path movement; instead, the durative form (TO GAZE AT) has smooth, circular reduplicated movement.[10]

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[9] Incidentally, observe that the application of slow reduplication has effects analogous to the gerundive expression *-te iru* in Japanese, mostly with processes (e.g., *tabe-te iru,* eat-te iru, ‘to be eating’); this is another signal for universality.

[10] In addition to the direction of the movement, duration and velocity also play an important role in the reduplication system of some sign languages. Notice that here TO LOOK INCESSANTLY is made with short tense iterated movements of the LOOK-AT sign and TO WATCH REGULARLY with rapid, nontense repetitions. Also in SSL there is a distinction between fast and slow reduplication. WAIT has two reduplicated forms expressing different aspectual contours.

WAIT	‘wait’
WAIT-fast	‘be waiting, wait for a while’
WAIT-slow	‘wait for a long time’ (Bergman & Dahl 1994: 402)

At first it appears as if the rules for deriving habitual and durational forms are trivial: reduplicate in a circle. A simple reduplication rule does not suffice to produce the habitual forms: there is the important addition of an M-epenthesis rule, inserting a transitional movement between the two reduplications. This point is crucial: this movement can in fact be considered a linking element, a typical clue of compounding and, therefore, of a morphological process, as already pointed out.

As far as plural is concerned, in DGS the plural of mid-sagittal nouns[11] is formed by reduplication, where the whole sign is produced three times. For example:

(30) HOUSE HOUSE HOUSE ‘houses’
(Pfau & Steinbach 2006: 146)

More specifically, DGS nouns are single-handed in the sideward signing space with a simple movement and without the involvement of the body, i.e., sideward, non-body-anchored nouns. They are pluralized by employing sideward reduplication. The whole sign is reduplicated with a movement to the right (for left-handed signers to the left).

(31) PERSON PERSON PERSON ‘people’

Notice that this instance of reduplication has effects on the very same lexical item as in Japanese (*hito hito* ‘person + person = people’).

It could be reasonable to think that the three different forms of repeating the sign result in different nuances of meaning, having therefore to do with semantics more than with computation; however, it should be remembered that sign languages are visually communicated, with the possibility of signing simultaneously and at different rates in a three-dimensional space. Moreover, the formal process of reduplication as aspectual changing device remains.

[11] In mid-sagittal nouns signs are demonstrated with both hands in the mid-sagittal plane.

In LIS, too, plural is rendered through means of reduplication:

(32) PLACE PLACE ‘places’

Names pluralized in such a way are, in LIS too, those articulated in the neuter space of the body (not all of them, yet),[12] and the reduplication of the sign is accompanied by a dislocation movement, again, as a linking element.

Notice that both in DGS and in LIS just one noun class can be pluralized by means of reduplication: again, this is a morphological restriction, significantly.

3.3. Repetition in Sign Languages

Repetition in SLs, however, can result in other effects. Instances of repetition, however, are not as numerous and varied as those of reduplication, as it happens in spoken languages.

As well as in ASL, other sign languages display more of the same repetition of verbs, where the meaning is that of ‘keep on….’ LIS is one of such languages.

(33) LIS
TELEPHONE TELEPHONE ‘keep on telephoning’
EAT EAT ‘keep on eating’

As a matter of fact, no segment or feature is ever added to the long, slow, and repeated movement for such verb.

Analogously to ASL, again, TS contains verbs that can have both slow and fast iteration. Such iterations, not accompanied with suprasegmental features, display similar meanings to the one that have been mentioned for repetition.

[12] Body-anchored signs display instead the adding of a pluralizing suffix.

(34) TS (Bergman & Dahl 1994: 402)
WAIT+++ ‘be waiting, wait for a while’
WAIT### ‘wait for a long time’

As a further example, reduplicated ASL verbs that have undergone a category-changing process through reduplication and have thus become (deverbal) nouns can be reiterated, typically carrying the meaning of “X after X after X,” with a meaning which is very similar to repetition in spoken languages.

(35) ASL
COMPOUND COMPOUND COMPOUND
‘compound after compound after compound’

Such process does not require any other device, such as a change in the manner. It comes after the conversion process, and has no grammatical function, suggesting, coherently, that it is operated after word formation.

The frequency of SLs reduplicative processes contrasts with the evident scarcity of attested repetitions in SLs, but the reason for the lack of examples is only partially to be attributed to the low amount of gathered data.

Fundamentally, it seems that the variety of processes of repetition is scantier than that of reduplication; this is not surprising, since it happens the same in the spoken medium.

4. Conclusions, Issues, and Perspectives for Future Study

In this work, it has been proposed that reduplication proper only exists if a specific grammatical form makes systematic use of reduplicative formations.

In natural languages, reduplication has the following characteristics: it is category-changing rather than meaning-changing, it is pluralizing and affects the aspectual contours of predications. Repetition, on the other hand, has semantic but no grammatical functions.

Such generalization appears empirically adequate not only in spoken languages but also in the study of SLs: it can be considered therefore universal, showing that SLs provide fundamental contribution to the study of theoretical issues in natural languages.

It has been argued that reduplication is a formal process with grammatical effects, while repetition is a juxtaposition of words, taking place just after morphological derivations, thus giving raise just to conceptual changes.

SL peculiar characteristics enable a clear-cut distinction between reduplication and repetition. In fact, it has been shown that reduplication processes give rise to the change of category (in ASL, in NZSL), to aspectual modulations (again, in ASL), to pluralisation (in DGS, in LIS), the very same processes that can be attested as output or reduplication in spoken languages.

Many aspects of signed reduplications are found in common with morphological processes of spoken languages: for instance, their non-predictability and limited productivity, the non-compositionality of meaning, the recurring presence of elements between the reduplicant, analogous to the linking elements of compounds in spoken languages, the restriction on applicability on verbs depending on the telicity, on nouns depending on their class, and so on.

All in all, the study, possibly more extended, of reduplication in SLs can be considered as a starting point in a cross-linguistic exploration including spoken languages, which has been just sketched here.

Thus, an empirically adequate analysis of several natural languages, including SLs, would support the proposed distinction, showing that SL provide fundamental contribution to the study of theoretical issues of universal grammar.

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