The diachrony of verbal classification: Classifier mergers and semantic incoherence in Southern and Western Daly

John Mansfield, University of Zurich
To appear in *Diachronica*

Abstract
Classifier systems apply a semantic classification to nouns or verbs, though in some systems the number of classes is much reduced, and classes may lose their semantic coherence. In this article I investigate the diachronic process by which classifier systems undergo set reduction and semantic dissolution, shifting them along a cline towards purely morphological classes. Following previous literature I identify two potential mechanisms, obsolescence and mergers, each of which reduce a set of classifiers by one. We might expect obsolescence to be the more dominant mechanism, since mergers are generally presumed to be rare. However, in a case study of verbal classifiers in Daly languages of northern Australia, I find extensive evidence for mergers, suggesting they play a major role in class reduction. I also consider the extent to which mergers may occur in other classifier systems, hypothesising a general relationship between compounding, information load and phonological erosion.

Keywords
mergers; morphology; grammaticalisation; erosion; semantics; Australian languages

1. Introduction

Grammar develops continuously over thousands of years, and its ends do not always clearly reveal its beginnings.[1] A prime example is the morphological classing of nouns or verbs, where lexemes are arbitrarily divided into a small set of classes. Noun class or "grammatical gender" is usually marked on accompanying determiners or adjectives, and is semantically vacuous for most referents. For verbs, too, there are morphological classes, where lexemes are arbitrarily assigned to inflectional classes that determine the exponence of tense, subject agreement etc. Class systems are not necessary for communication, and their development therefore constitutes one of the major puzzles of linguistic theory (Aronoff 1998; Dahl 2004). There are some potential functional explanations for class markers, which despite their lack of referential meaning, may nonetheless help to indicate discourse or syntactic structure, or to provide signal redundancy for communication in noisy environments (Acuña-Fariña 2009; Arnon & Ramscar 2012; Contini-Morava & Kilarski 2013). But in this study, rather than attempting to explain the functional motivation of class markers, I aim to explain some aspects of the process by which they derive from once-meaningful linguistic elements.

[1] This article benefitted from discussion with Rachel Nordlinger, Ian Green, Tom Poulton, and from audiences at the University of Melbourne and the European Australianist Workshop 2023.

This article focuses on the process of class reduction, whereby semantically motivated classifier systems undergo gradual set reduction to become meaningless class markers. More specifically, I analyse verbal classification systems in Daly languages of northern Australia, where classifiers have some semantic correlates, but also shows signs of semantic dissolution in a way that shifts them along the cline from event classifiers towards arbitrary morphological classes (Dixon 1982: 211–233; McGregor 2002). I draw on data from two small language families, Southern Daly and Western Daly. These two families may be distantly related (Green & Nordlinger 2022), though any such relationship has not been demonstrated and is not addressed in this article.

The phenomenon I want to explain is how a large set of semantically substantive verbal lexemes gradually reduces to a small set of class markers. Although there is plentiful research on the typology of classifier and class systems (e.g. Dixon 1986; Grinevald 2000; Aikhenvald 2003; Mel'cuk 2006), there is relatively little research on diachronic mechanisms of class reduction. Several relevant studies are brought together in a volume edited by McGregor and Wichmann (2018), including a general proposal for two main mechanisms of class reduction in noun classifiers (Seifart 2018). With a little abstraction, these two mechanisms are also applicable to verbal classifiers.

Seifart's first mechanism is contextual OBSOLESCENCE of lexemes. For nominal classifiers, obsolescence occurs in anaphoric contexts, where more general nouns may be favoured instead of more specific nouns. This could lead to the gradual disappearence of specific nouns in such contexts, leaving a reduced set of generic classifier nouns (Seifart 2018: 15). While noun classifiers may become obsolete within a certain type of anaphoric construction, for verbs a parallel process might involve finite verbs becoming obsolete in the context of complex predicate constructions. In this article I will show that obsolescence has played at least some role in Daly verbal class-reduction, but this will not be my main focus.

The main focus of this article builds on Seifart's second mechanism, which he calls "coalescence", and I will call MERGERS. This is where a set of classifiers is reduced due to phonological erosion, which increases the possibility of phonological identity between historically distinct forms. Taking examples from Bora-Miraña of the northwest Amazon, Seifart shows that noun classifiers are phonologically reduced forms of nouns, e.g. *móːaj* "river" > *-mo* "CLF:RIVER" (Seifart 2018: 22). This leads to instances where two nouns have the same reduced form, birthing a single formal classifier from two lexical sources. For example the classifier *-mu* is used to classify both *kuːmu* "signal drum" and *niːmu* "umarí fruit", being the outcome of phonological reduction in each. We can define mergers as any instance where distinct etymologies converge in such a way that their reflexes become indistinguishable.

Lexical obsolescence appears to be a widespread, constant process of historical change (Tichý 2018), but lexical mergers seem to be a rather marginal phenomenon. We regularly find cases where two distinct etymologies given rise to words of the same form, such as in English *file* "metal tool" (< Germanic) and *file* "set of documents" (< French) (Durkin 2016: 237). But these can still be distinguished by their semantics. It is much

rarer to find true mergers, where etymologies become both formally and semantically indistinguishable. One example in English is *post* "send message or data to an online forum", which merges etymologies from (1) *post* "attach to a post or pole" and (2) *post* "send via a postal service" (Durkin 2016: 240). Mergers are not expected to occur frequently in word histories, as they depend upon a chance confluence of form and meaning. But in the context of classifier systems, mergers may be more likely, due to the simultaneous erosion of both form and meaning.

Since lexical obsolescence is a common process, and mergers something of a rarity, we might expect obsolescence to be the major mechanism driving classifier set reduction. However, in the case of Daly verbal classifiers, I will argue that mergers have played a substantial role, and this appears to be more substantial than obsolescence within the limits of what can be inferred from the attested languages. I will also argue that this may not be a freak occurrence, but may instead point to more general principles that favour mergers in classifier systems. Certain types of classifiers, in which phonological erosion, analogy and reduced information load are all prominent features, may provide an especially fertile substrate for mergers.

Section §2 will give a brief introduction to verbal classification in northern Australian languages, focusing on the cline from classifiers to morphological classes, and providing a brief assessment of the evidence for obsolescence processes. The following sections then delve into evidence for mergers in Daly languages, with evidence from suppletive roots (§3), rootless classifiers (§4) and analogical convergence (§5). In section §6 I discuss the general conditions that may favour mergers in classifier systems.

2. From classifiers to classes in northern Australian verbs

I here provide a brief and selective overview of northern Australian complex verbal constructions, which dominate verbal lexicons from the Kimberleys across to Arnhem land (Osgarby & Bowern 2023). I outline a spectrum of structures from phrasal light-verb constructions, with semantically transparent combinations of two lexical elements, to more fusional structures that are essentially monolexical. We will see that Daly verbal classifiers sit somewhere in the middle of this spectrum, which makes them particularly useful when considering the gradient of semantic transparency.

2.1. From lexical verbs to class markers in northern Australia

Compound verb structures, combining pairs of lexemes, are dominant around the Kimberley ranges to the north-west, for example in Jaminjung and Nyulnyulan languages (Schultze-Berndt 2000; McGregor 2002; Bowern 2014). Event classification is not found in all examples (Bowern 2010),[2] but it is a key characteristic of the areal

[2] In some works these are labelled 'complex predicates', reserving the term 'classifier' for event-classification functions, which are not always present in these structures (Bowern 2010). However I will use 'verbal classifiers' as a more general term, to highlight the diachronic process of class reduction.

phenomenon, with classifiers expressing event features such as types of motion, contact, valency or aktionsart (Schultze-Berndt 2000; McGregor 2002).[3]

Verbal classifier languages have fewer finite verbs than other languages. For example, in Jaminjung there are just 35 finite verbs, almost all of which are used as verbal classifiers (Schultze-Berndt 2000). In Nyulnyulan languages there are 100–200 finite verbs, with around 10–15 used as classifiers (Bowern 2008; McGregor 2018). Although these classifiers have more abstract semantics than a typical concrete lexeme like *walk* or *slap*, their use in complex predicates is semantically coherent, because the predicates share some common semantic features. For example, Jaminjung has a classifier *-arra* "put", which occurs in compounds that involve "causing a change of locative relation" (Schultze-Berndt 2000: 238ff.). Example (1a) shows *-arra* as a simple verb with the basic sense of changed location, while example (1b) shows the classifier *-arra* combining with the coverb *jubard* "shut in". There are also uses that maintain some but not all of the core semantic features, as in example (1c), where *-arra* still involves an agent causing change, but instead of changing location it changes size.

(1) Jaminjung (Schultze-Berndt 2000: 238–242)

a. *Gugu* *nga-w-arra=biyang* *ba-wurr-ijga!*
water 1SG>3SG-FUT-put=now IMP-2PL-go
"I'm going to put the water on (turn on sprinklers), you all go away!"

b. *Jubard* *nganth-arra-ny* *kap-gi*.
shut.in 2SG>3SG-put-PST cup-LOC
"You shut it in the jar."

c. *Gujugu=marraj* *ga-rra-ji* *jarlig*.
big=SEMBL 3SG-put-REFL.PRS child
"The child pretends to be big."

In Jaminjung and Nyulnyulan, there is consistent semantic content found in all or almost all of the complex predicates in which a classifier appears. I refer to this situation as "semantic coherence" of the classifier, and I include within this cases of semantic extension such as (1c) above. There are also a few complex predicates that don't fit the semantic patterns (e.g. Schultze-Berndt 2000: 248), though these appear to be outliers, or in the case of Bardi (Nyulnyulan), "not very common" (Bowern 2010: 61).

Semantic INCOHERENCE is when the set of compounds using a classifier do not all share semantic features. This is more prominent in Southern and Western Daly languages. For example, in Western Daly there are some classifiers that have multiple disconnected semantic clusters (e.g. Green 1989: 331-342), and at least one classifier is claimed to lack any clear semantic pattern whatsoever (Bicevskis 2023: 209). These cases of semantic incoherence will play an important role in this article, where they are treated not as anomalies but as clues to historical process.

[3] This event classification is quite distinct from various 'classifying' systems in north American and Papuan languages, where verbal morphology expresses features of the object such as shape, texture etc (DeLancey 2009; Foley 2018: 392).

Southern and Western Daly classifiers occur in morphologically complex constructions, and many classifiers can only be used in these structures, never as simple verbs (Nordlinger 2017). For example, Western Daly languages have around 20–25 classifiers, which mostly appear only in compounds. One such classifier is *kiny-* "slash", which occurs in compounds that involve a lateral, swinging motion with a long edge making contact with an undergoer (Green 1989: 342ff.). As we can see by comparing the forms of *kiny-* "slash" in (2a–c) (examples in Green's orthography), a Daly classifier does not take a single form, but rather has a paradigm of inflected forms, which index subject person, number and TAM categories (here R = "realis"). The classifiers combine with coverbs (e.g. *kurr* "hit" in 2a), incorporated body parts and various suffixes. Some *kiny-* compounds show semantic coherence in the shared meaning of lateral, swinging motion (e.g. 2a–b). But example (2c) shows that there is also some semantic incoherence, since the compound verb "arise" does not share semantic elements with the "slash" compounds.

(2) Marrithiyel (Green 1989: 343, 357)

a. *Ginj-ing-kurr-a* *yeri* *gunjsjungunj-gin.*
slash.3SG.R-1SG.O-hit-PST weapon boomerang-INSTR
"He hit me with a boomerang (i.e. by swinging it so the edge hit me)."

b. *Wudi-nanga* *nginj-ingin-thenggi-sru-du* *ngifel-a* *fuwa-gin.*
water-LOC slash.1SG.R-1SG.RR-bottom-ITER-touch lie.1SG.R-PST leg-INSTR
"I was swimming along (i.e. using the legs in a lateral, swinging motion)."

c. *Girrinj-inggi-put-a*
slash.1PL.r-PL-arise-PST
"We got up."

More semantically depleted class markers are found in Gunwinyguan languages such as Bininj Gun-wok. Here we find a monolexical verbal construction, where the verbal stem combines with a class marker or "thematic" that determines conjugation. This conjugation class system is thought to derive from historical compound constructions of the type described above (Evans 2003: 345). Bininj Gun-wok thematics are essentially meaningless syllables that mediate between a lexical stem and its inflectional suffixes. Some can also be used as verb stems in simple verbs, and the verb lexemes that share a thematic show loose tendencies towards certain event types, presumably reflecting their lexical sources. For example, *-me* occurs in predominantly intransitive verbs such as *bame* "shine", *balme* "overflow" and *lobme* "run", though it also occurs in some transitive verbs like *bedme* "crush" (Evans 2003: 346).

2.2. Diachronic processes in Australian verbal classifiers

There is a (rare) consensus among Australianists that verbal classifier or class systems represent different stages of a common historical process (Dixon 2002: 197–200; McGregor 2002: 342–351; Schultze-Berndt 2003: 146–147). The starting point is a system of simple verbs with regular finite inflection. Light-verb constructions (e.g.

Jaminjung, Nyulnyulan) then develop when a subset of verbs take on most of the work in the finite verb position, while combining with non-finite coverbs. The set of finite verbs in this construction continues to decrease, becoming semantic classifiers, but also gradually losing semantic incoherence (e.g. Western Daly), leading eventually to a system where finite inflection is mediated by a set of meaningless class markers (e.g. Bininj Gun-wok). This article will highlight the role of mergers in such a process.

Some previous studies have proposed specific mechanisms of classifier set reduction. For example in Nyulnyulan languages, there are enough shared verbs and coverbs to posit that these derive from a proto-Nyulnyulan light-verb construction (Bowern 2008; McGregor 2018). The daughter languages each have a different selection of light verbs, and some but not all of these are cognate. For example all five languages studied use the verb *ni "sit, be" as a classifier; but only the Eastern Nyulnyulan languages Nyikina, Warrwa and Yawuru use *ngara "become" as a classifier, while only the Western Nyulnyulan languages Bardi and Nyulnyul use *kal "wander" as a classifier (McGregor 2018: 319). This could be explained if in both Eastern and Western branches, some of the classifier verbs have dropped out of usage (at least in the light verb construction). Proto-Nyulnyulan would then have had a larger set of classifiers than the daughter languages, each of which has undergone a process of class-reduction. This suggests a lexical obsolescence process.

In Mirndi, a language family with discontinuous branches in the Gulf of Carpentaria ("Ngurlun" branch) and the Kimberley ("Yirram" branch), it has also been claimed that the ancestor language had a light verb construction (Harvey 2008). In the Ngurlun branch, verbal classifiers have undergone particularly severe reduction in both phonological form and number of reflexes. With such reduced evidence, only a single proto-Mirndi classifier verb *ruma "come" can be reconstructed (Harvey 2008: 28–30). In the Yirram branch, there remain far more verbal classifiers, as exemplified by Jaminjung above. This suggests that the Ngurlun branch may have undergone obsolescence of verbal classifiers, compared to the proto-Mirndi ancestor.[4]

2.3. Obsolescence and mergers in Daly verbal classifiers

Obsolescence has also undoubtedly played some role in Daly languages, though only a few instances can be identified. In Western Daly, the languages Marrithiyel, Marri Tjevin and Marri Ngarr are closely related and share almost all classifiers, with only minor changes of form. In Southern Daly, the classifier forms are substantially different between Murrinhpatha and Ngan'gi, but careful reconstruction has shown that most classifiers in one language have a cognate in the other (Green 2003). Nonetheless, there is some evidence for obsolescence. For example Ngan'gi has a classifier *disyem* "pull" (root *sye*), which does not have an obvious cognate in Murrinhpatha. There has also been one case of obsolescence in Murrinhpatha within living memory. Street's

[4] Within the Yirram branch, comparison of Jaminjung and its close sister Ngaliwurru also reveal some instances where a classifier has become obsolete in one language while persisting in the other (Eva Schultze-Berndt, p.c.).

documentation from 1970s and 1980s missionary work (Street 1987; Street 2012) attests a classifier *kanthangan-* (root *ntha*), with just two compounds, *kanthangan-ngkardal* "balance on floating log" and *kanthangan-tete* "have insomnia". This classifier appears to have become obsolete in the decades since Street's work.

Thus Daly classifiers show relatively little evidence for classifier obsolescence. If these two families could be shown to be related at a higher level, this might reveal further instances of obsolescence at a greater time depth; however this question must await further comparative work on the two families.

Mergers are much more evident in Daly verbal classifiers, and this will be the focus of the sections that follow. I will begin with instances where a classifier verb has suppletive roots, which provides obvious evidence for mergers between multiple historical verbs (somewhat like English *go*, *went*). However I will then turn to a more subtle type of evidence, aided by a revealing reconstruction in Southern Daly. Two proto-Southern-Daly (pSD) classifiers can be reconstructed, which merge into a single rootless classifier in Murrinhpatha. One symptom of this is semantic incoherence in the Murrinhpatha reflex, where distinct semantic clusters reflect the two historical source classifiers. We will then review rootless classifiers more broadly in Southern and Western Daly, noting the presence of multiple rootless classifiers in each language. In several cases, these rootless classifiers show striking semantic incoherence, suggesting that they may have undergone other mergers. Finally, we will explore analogical processes in Southern Daly, which tend to make distinct classifiers more similar to one another. These may have resulted in yet more mergers, even in classifiers with phonologically realised roots. Again, some of the relevant classifiers exhibit semantic incoherence, which is compatible with a history of mergers.

2.4. Scope and sources for the current study

The languages discussed here are the two attested Southern Daly languages, Murrinhpatha and Ngan'gi (encompassing dialects Ngan'giwumirri and Ngan'gikurunggurr), and the best documented Western Daly languages, Marrithiyel and Marri Ngarr, supported with further Marri Tjevin data from my own fieldwork.

Morphological description of the classifiers is available for all these languages, and some works also include relatively detailed semantic analysis, especially for Marrithiyel (Green 1989), Marri Ngarr (Bicevskis 2023) and Ngan'gi (Reid 1990). Murrinhpatha has substantial descriptive materials (e.g. Walsh 1976; Blythe 2009; Nordlinger 2010; Mansfield 2019), though less semantic analysis of verbal classifiers (Barone-Nugent 2008; Nordlinger 2012; Seiss 2013). There is also historical reconstruction for parts of the Southern Daly classifier system (Green 2003), which will be of particular importance for this article. I also draw on the dictionaries for Ngan'gi (Reid & McTaggart 2008) and Murrinhpatha (Street 2012), and a preliminary description of the Marri Tjevin dialect of Western Daly (Qureshi 2023). Uncited Murrinhpatha and Marri Tjevin examples in the text below are from my own fieldwork.

Daly verbal classifiers are usually glossed as fused units, such as *nginj-* "slash.1SG.R" in example (2b) above. But these units do in fact contain somewhat irregular morphological structure (Mansfield 2016; Mansfield & Nordlinger 2020), and in much of this article I will have reason to dissect affixes and roots, for example presenting *nginy-* as *ngi-ny-* "1SG.R-slash-". I use trailing hyphens to indicate that the *kiny-* classifier, for example, occurs only in compounds and never as an independent verb.

3. Suppletive roots

Perhaps the most obvious evidence for historical mergers in classifiers is suppletion of their root elements. This has been observed in some other Australian light verb constructions, for example in Jaminjung where the verb "be" has roots *akpa* or *ya* in different tense forms, suggesting historical merger from two previously distinct verbs (Harvey 2008: 31). There is also evidence for this in Daly verbal classifiers.

In Murrinhpatha, four of the classifier verbs have been described as having suppletive roots ("lie", "stand", "go", "slash" Mansfield 2019: 238–261). This is illustrated for the classifier *wurran* "go" in Table 1. The NFUT (non-future) category here expresses actuated events in the present or the past (Nordlinger & Caudal 2012). After taking into account semi-regular processes such as vowel ablaut and rhotic mutation (Mansfield 2019: 125ff.), *wurran* "go" appears to have at least two distinct roots *rru*, *mpa*, and perhaps a third, *yi*.

Table 1. Partial paradigm of Murrinhpatha *wurran* "go"

	NFUT	IRR	PST.IRR
1SG	*ngu-rra-n*	*ngu-rru*	*ngu-rri*
2SG	*thu-rra-n*	*thu-rru*	*thu-rri*
3SG	*wu-rra-n*	*wu-rru*	*wu-rri*
1PL	*ngu-mpa-n*	*ngu-ru*	*ngu-yi*
2PL	*nu-mpa-n*	*nu-ru*	*nu-yi*
3PL	*pu-mpa-n*	*pu-ru*	*pu-yi*

Some of the suppletive roots found in *wurran* "go" and other classifiers may be susceptible to alternative accounts. On the one hand, roots may be subject to extensive phonological alternations in morphologically complex languages (Chafe 1998), and in extreme cases this could look like suppletion. Alternatively, defunct inflectional formatives may come to occupy the linear position of the root. In Eastern Gunwinyguan, it has been proposed that inverse and potential affixes arose through the reanalysis of unrelated morphological fragments that happened to be in the relevant linear position (Heath 1997). A similar process could apply in Daly verbs, here filling the position of verbal roots in particular subparts of the paradigm. It is therefore impossible for us to determine exactly how many of the Murrinhpatha suppletive verb roots should be attributed to the merger of erstwhile distinct verbs, but given the number of such cases in (six instances in four different classifiers), it seems likely that at least some are the

result of mergers. There are also multiple instances of apparently suppletive classifier roots in Western Daly, for example *nga*, *sja*, *wa* in "stand"; *wu*, *sri*, *gi* in "sit", *nyi*, *gi* in "slash" and *ni*, *rri* in "use feet" (Green 1989: 73; Qureshi 2023: 72ff.).

Suppletive roots suggest that at least some of class-reduction process in Southern and Western Daly has occurred through merging of multiple finite verbs into single classifiers. In the following sections we will see further forms of evidence in classifiers that have no roots, and even those that have a single consistent root.

4. Rootless classifiers and semantic incoherence

We now turn to rootless classifiers, focusing on evidence from semantic incoherence, and analysing one case where we can reconstruct the merger of historically distinct classifiers into a single rootless classifier.

Rootless verbal classifiers are a particular subspecies of rootless verbs, which have been observed in a few languages (Comrie & Zamponi 2019: 234–243). Rootless verbs tend to be semantically light, with simple, high-frequency meanings such as "be", "go" or "give". It has also been noted that the presence of surrounding inflectional material may facilitate complete erosion of verbal roots. It is therefore not surprising that rootlessness should occur in Daly classifier verbs, which tend to be semantically light and richly inflected.

4.1. Rootless classifiers

Daly verbal classifiers have phonologically minimal roots, usually consisting of just one or two segments (e.g. Murrinhpatha *nu* "use feet", Marrithiyel *rr* /ɾ/ "use hands"). There are also completely rootless classifiers, which are laminates of inflectional material around an empty core. Some of these classifiers may not have had a root for hundreds or thousands of years. Nor is rootlessness limited to Daly languages within the northern Australian verbal classification area. Rootless light verbs are also found in the Nyulnyulan languages Bardi, Warrwa and Yawuru (Comrie & Zamponi 2019: 234–238). These include both specific inflected forms that lack a phonologically realised root, and classifiers that are rootless in all their inflected forms.

When roots have completely eroded, inflected classifier forms may still be distinguished by inflectional material. For example, Bardi 3PL.PST light verbs maintain some formal distinctions based purely on vowel epenthesis and harmony, despite verbs being rootless (3a) or with root deletion in specific forms (3b). However there are also some instances of syncretism due to root deletion processes (3c).

(3) Bardi (Bowern 2012: 88, 132)

a. *I-ng-rr-Ø-j* > *ingarrij*
   3-PST-AUG-give-PFV
   "They gave (it)."

b. *I-ng-rr-ju-j* > *ingirrij*
   3-PST-AUG-do-PFV
   "They did (it)."

b. *I-ng-rr-ga-j* > *ingarrij ~ ingirrij*
3-PST-AUG-carry-PFV
"They carried (it)."

Root erosion, with some distinctions still maintained inflectional allomorphy, is particularly prevalent in Murrinhpatha. In this language there are some 26 verbal classifiers,[5] none of which has a root for longer than three segments, and several of which have rootless forms. Each classifier appears in 37 inflected forms, expressing distinctions of TAM, person and number. Table 1 above already presented a partial paradigm of the Murrinhpatha classifier *wurran* "go". Table 2 illustrates a partial paradigm of *dilam-* "wipe", which has a consistent, phonologically realised root *la*, altered only by a consonant gemination process giving *lla* in plural forms.

Table 2. Partial paradigm of Murrinhpatha *dilam-* "wipe"

	NFUT	PST	IRR
1SG	*ngi-la-m-*	*ngi-la-*	*ngi-la-*
2SG	*thi-la-m-*	*thi-la-*	*thi-la-*
3SG	*di-la-m-*	*di-la-*	*ki-la-*
1PL	*ngi-lla-(nga)m-*	*ngi-lla-*	*ngi-lla-*
2PL	*ni-lla-(nga)m-*	*ni-lla-*	*ni-lla-*
3PL	*pi-lla-(nga)m-*	*pi-lla-*	*ki-lla-*

Example (4) shows an inflected form of *dilam-* appearing in a verbal compound with the coverb *kurrk* "scratch". This example also shows the potential for additional morphology, here a suffix marking a pronominal object.

(4) Murrinhpatha
Pillam-ngi-kurrk
wipe.3PL.NFUT-1SG.O-scratch
"They scratched me."

The phonologically realised root of *dilam-* can be compared to the classifier *pangam-* "arrive" in Table 3, which lacks any phonological material in the root position. Murrinhpatha has several rootless classifiers, which remain formally distinct thanks to its extensive inflectional allomorphy. Table 4 illustrates another classifier *dam-* "mouth/pierce", which is also rootless in all forms. Nonetheless it is distinct from *pangam-* in the NFUT.SG forms, thanks to NFUT suffix allomorphy (*-ngam* vs *-m*) and 3SG prefix allomorphy (*pa-* vs *da-*). Affix allomorphy is pervasive in Southern Daly classifiers, especially in vowel ablaut (e.g. *nga-* vs *ngu-*), tense suffix alternations (NFUT *-ngam* vs *-m* vs *-n,* PST *-ni* vs *-rni*), and several suppletive 3SG prefixes including *di-*, *pa-*, *ka-* and *Ø-*

[5] Somewhat different figures appear in different sources. Some sources treat reflexive forms as distinct classifiers, which brings the total up to about 35 (e.g. Street 1987). The figure of 26 is closest to the analysis in Mansfield (2021), differing from this only in the treatment of a single classifier, see fn.9 below.

(Green 2003: 139).[6] Allomorphy is so extensive in Murrinhpatha that only two of the 26 classifiers share the same inflectional pattern in all cells of the paradigm (Mansfield 2019: 115). This allows classifiers to remain distinct even as their roots disappear.

Table 3. Partial paradigm of Murrinhpatha *pangam-* "arrive"

	NFUT	PST	IRR
1SG	*nga-Ø-ngam-*	*nga-Ø-ni-*	*nga-Ø-*
2SG	*tha-Ø-ngam-*	*tha-Ø-ni-*	*tha-Ø-*
3SG	*pa-Ø-ngam-*	*da-Ø-ni-*	*ka-Ø-*
1PL	*ngarra-Ø-m-*	*ngarra-Ø-ni-*	*nga-Ø-*
2PL	*narra-Ø-m-*	*narra-Ø-ni-*	*na-Ø-*
3PL	*parra-Ø-m-*	*parra-Ø-ni-*	*ka-Ø-*

Table 4. Partial paradigm of Murrinhpatha *dam-* "mouth/pierce"

	NFUT	PST	IRR
1SG	*nga-Ø-m-*	*nga-Ø-ni-*	*nga-Ø-*
2SG	*tha-Ø-m-*	*tha-Ø-ni-*	*tha-Ø-*
3SG	*da-Ø-m-*	*da-Ø-ni-*	*ka-Ø-*
1PL	*ngarra-Ø-m-*	*ngarra-Ø-ni-*	*nga-Ø-*
2PL	*narra-Ø-m-*	*narra-Ø-ni-*	*na-Ø-*
3PL	*parra-Ø-m-*	*parra-Ø-ni-*	*ka-Ø-*

Ngan'gi also has some rootlessness, though this is mostly in individual inflected forms rather than entire classifier paradigms. Western Daly also has some rootless inflected forms, and one completely rootless classifier, *ki-* "mouth". Table 5 illustrates the classifier *kiny-* "slash" with phonologically realised but suppletive roots *ny(i)* ~ *gi*, while Table 6 illustrates the rootless classifier *ki-* "mouth" (Qureshi 2023: 91).[7] Western Daly classifiers have less affix allomorphy than Murrinhpatha, and the only allomorphy here is in the 2SG.IRR prefixes (*a-* vs *ngindi-*). Without extensive affix allomorphy, it is more difficult to maintain distinctions between multiple rootless classifiers, and indeed *ki-* "mouth" is the only rootless classifier in Western Daly.

[6] The suppletive 3SG prefixes in Southern Daly are themselves something of a mystery. One possibility is that some of these forms have been reanalysed from material with completely different functions, perhaps including parts of older verbal roots (cf. Heath 1998).

[7] Forms are from Marri Tjevin and Marrithiyel, which are virtually identical in their classifiers (Qureshi 2023). Marri Ngarr classifiers have slight differences, which do not affect the arguments here (Bicevskis 2023).

Table 5. Partial paradigm of Western Daly *kiny-* "slash"

	REAL	IRR
1SG	*ngi-ny-*	*nga-gi-*
2SG	*kini-ny-*	*a-nyi-*
3SG	*ki-ny-*	*ka-gi-*
1PL	*kirri-ny-*	*ngirri-ny-*
2PL	*kini-ny-*	*na-ny-*
3PL	*ku-ny-*	*virri-ny-*

Table 6. Partial paradigm of Western Daly *ki-* "mouth"

	REAL	IRR
1SG	*ngi-Ø-*	*nga-Ø-*
2SG	*kini-Ø-*	*ngindi-Ø-*
3SG	*ki-Ø-*	*ka-Ø-*
1PL	*kirri-Ø-*	*ngirri-Ø-*
2PL	*kini-Ø-*	*na-Ø-*
3PL	*ku-Ø-*	*virri-Ø-*

Apart from the facilitating effect of affix allomorphy, the widespread rootlessness in Murrinhpatha classifiers is also explained by a medial erosion process, which can be inferred by comparison with the cognate Ngan'gi paradigms. Table 7 illustrates the Southern Daly classifier *kagantjin "carry", mostly following Green's reconstruction (Green 2003: 149–151). We can see that contemporary differences between the daughter languages (forms here from Ngan'giwumirri dialect) mostly involve medial deletions in Murrinhpatha, and initial lenitions in Ngan'gi. In Murrinhpatha, the disyllabic root *gantji is reduced to the monosyllabic *nthi*, while in Ngan'gi there are prefix lenitions such as *tha- > *ya-*.

Table 7. Comparative partial paradigms of Southern Daly *kaganthin "carry"

	PROTO-SD	NGAN'GIW (PRS)	MURRINHPATHA (NFUT)
1SG	*nga-gantji-n	*nga-gantji-n*	*nga-nthi-n*
2SG	*tha-gantji-n	*ya-gantji-n*	*tha-nthi-n*
3SG	*ka-gantji-n †	*ye-ntji-n*	*ka-nthi-n*
1PL	*ngarr-gantji-n	*ngarr-gantji-n*	*nga-nthi-n*
2PL	*narr-gantji-n	*yarr-gantji-n*	*na-nthi-n*
3PL	*parr-gantji-n	*warr-gantji-n*	*pa-nthi-n*

† Green proposes *yantjin for pSD 3SG, but *kagantjin may better account for the initial velar in the Murrinhpatha form.

Medial deletion most frequently affects the second syllable of the pSD form, and is likely the direct cause of widespread rootlessness in Murrinhpatha. Since many of the pSD roots are already phonologically minimal, and are in the second-syllable position, erosion of these roots frequently results in rootlessness.

4.2. Merging to zero

Rootless classifiers illustrate one particularly clear instance merging, thanks to a fortunate case of reconstructibility in Southern Daly. Ngan'gi has two distinct classifiers *dingiN-* "mouth" and *dangim-* "pierce", which are both mostly rootless, but are distinguished by inflectional allomorphy as well as traces of a root *ri* in some forms of *dangim-*. There is evidence that these two classifiers have merged in Murrinhpatha into a single, rootless classifier *dam-* "mouth/pierce", illustrated in Table 4 above.

The semantics of the two Ngan'gi classifiers are clearly distinct. *DingiN-* "mouth" occurs in compounds expressing use of the mouth such as chewing, sucking, and also in speech events (5a,b). *Dangim-* "pierce" involves the use of pointed instruments on a patient such a spearing, stabbing, sewing (5c,d). The merged reflex in Murrinhpatha has compounds in both these semantic clusters: using the mouth (6a,b) and piercing actions (6c,d). This suggests that Murrinhpatha *dam-* "mouth/pierce" is a merger of two distinct pSD classifiers, which have remained (marginally) distinct in Ngan'gi. As shown in these examples, the entire compounds are often cognate (e.g. *dingiN-lek ~ dam-luk; dangim-bang ~ dam-bang*), providing strong evidence that Murrinhpatha *dam-* is cognate with both *dingiN-* and *dangim-* in Ngan'gi.

(5) Ngan'gi (Reid & McTaggart 2008)

a. *dingiN-lek* "lick"

b. *dingiN-tyerr-pu* "ask"

c. *dangim-bang* "stab"

d. *dangim-pawal* "spear"

(6) Murrinhpatha

a. *dam-luk* "chew"

b. *dam-dharrpu* "ask"

c. *dam-bang* "stab"

d. *darm-warl* "spear"

Extrapolating from Green's (2003) reconstructions, we can hypothesise the pSD forms for two distinct classifiers, *da(ri)ngim "pierce" (Table 8) and *dingim "mouth" (Table 9).[8] These two distinct classifiers, already similar in pSD, became increasingly similar in Ngan'gi through root erosion, and completely identical in Murrinhpatha where the inflectional allomorphy is also identical.

[8] I here use Ngan'giwumirri forms for *dangim-* 'pierce' and Ngan'gikurunggurr forms for *dingiN-* 'mouth', since these help indicate likely differences in the pSD sources. However note that the two classifiers are also distinct within each dialect.

Table 8. Comparative partial paradigms of Southern Daly **da(ri)ngim* "pierce"

	PROTO-SD	NGAN'GIW (PRS)	MURRINHPATHA (NFUT)
1SG	*nga-ri-ngim	*nga-ri-m*	*nga-Ø-m*
2SG	*tha-ri-ngim	*ya-ri-m*	*tha-Ø-m*
3SG	*da-(ri-)ngim	*da-Ø-ngim*	*da-Ø-m*
1PL	*ngarra-(ri-)m	*ngarri-Ø-m*	*ngarra-Ø-m*
2PL	*narra-(ri-)m	*yarri-Ø-m*	*narra-Ø-m*
3PL	*parra-(ri-)m	*warri-Ø-m*	*parra-Ø-m*

Table 9. Comparative partial paradigms of Southern Daly *dangim "mouth"

	PROTO-SD	NGAN'GIK (PRS)	MURRINHPATHA (NFUT)
1SG	*nga-Ø-ngim	*nge-Ø-N*	*nga-Ø-m*
2SG	*tha-Ø-ngim	*ya-Ø-N*	*tha-Ø-m*
3SG	*da-Ø-ngim	*di-Ø-ngiN*	*da-Ø-m*
1PL	*ngarra-Ø-m	*ngerre-Ø-N*	*ngarra-Ø-m*
2PL	*narra-Ø-m	*yerre-Ø-N*	*narra-Ø-m*
3PL	*parra-Ø-m	*werre-Ø-N*	*parra-Ø-m*

The reconstruction above takes advantage of a rather fortunate situation, where the two classifiers are still marginally distinct in Ngan'gi, while having fully merged in Murrinhpatha. This establishes evidence for Murrinhpatha *dam-* as a merger of at least two distinct historical classifiers. But why stop at two? In fact the semantics of Murrinhpatha *dam-* compounds are extremely diverse, and much of the same semantic diversity is found in Ngan'gi *dangim-* "pierce" compounds. For example, both *dam-* and *dangim-* are also used as the base for the verb "give" (Murrinhpatha *dam-mut*; Ngan'gi *dangim-fime*). Reid considers whether this could be a case of semantic extension, but casts doubt on this due to the lack of pointed, penetrating contact in giving events (Reid 1990: 256; see also Barone-Nugent 2008). Although semantic extension can never be definitively ruled out in any particular case, a more obvious explanation in this instance is that there were previously distinct "pierce" and "give" classifiers, which merged by root erosion in much the same way as "mouth/pierce" have merged. That would make Murrinhpatha *dam-* the product of a three-way merger, "mouth/pierce/give".

Many more such examples could be presented, and I have counted some 94 Murrinhpatha *dam-* compounds for which the semantics are not obviously related to either "pierce" or "mouth". Some of these form their own semantic clusters, often with Ngan'gi cognates, such as transfer of liquid (*dam-mardapak* "pour into container", *dam-winhipak* "spill", *dam-luwewu* "baptise"; cf. Ngan'gi *dangim-tyerrguduk* "pour liquid into mouth", *dangim-pikek* "baptise"), or directed walking (*dam-dharrwat* "pass by", *dam-pirntikat* "walk around the side", *dam-rtiwak* "follow person"; cf. Ngan'gi *dangim-tipek* "follow person", *dangim-dudu* "follow tracks"). But there are also many idiosyncratic outliers, e.g. *dam-ngurruwerr* "peak around the side", *dam-rtirturt* "burn grass", which appear to be semantically unrelated to any other compounds in *dam-*.

For each of these clusters or outliers, one could propose semantic extension as a potential explanation.[9] But it would be very unusual for *all* the disconnected event types expressed with Murrinhpatha *dam-* to have extended from one or two original semantic bases. Although we cannot be sure exactly which compounds involve semantic extension and which involve mergers of erstwhile distinct classifiers, it seems most likely that Murrinhpatha *dam-* and Ngan'gi *dangim-* are the result of mergers from several historical sources. Given that there are 94 Murrinhpatha *dam-* verbs that have no obvious semantic relation to "mouth/pierce", and given that we have a clear phonological process of root erosion, the merge-to-zero process may even have involved dozens of historically distinct finite verbs.

4.3. Semantic incoherence in other rootless classifiers

The reconstructible evidence available for Murrinhpatha *dam-* may not be repeatable for other Daly classifiers, as it is rather difficult to reconstruct from zero. But other rootless classifiers show similar semantic incoherence, which raises the possibility of other mergers from unreconstructible etyma.

The rootless Murrinhpatha classifier *dim* "sit" provides a good example for Southern Daly. Table 10 illustrates the proto-SD classifier *di(ri)m "sit", extrapolating NFUT/PRS forms from the PST reconstructions proposed by Green (2003: 138).[10] The root *ri has been lost in most daughter forms, except for Ngan'gi 1SG and 2SG (Reid 1990: 397ff.).

Table 10. Comparative partial paradigms of Southern Daly *di(ri)m "sit"

	PROTO-SD	NGAN'GIW (PRS)	MURRINHPATHA (NFUT)
1SG	*nga-ri-m	*ngi-ri-m*	*nge-Ø-m*
2SG	*thi-ri-m	*yi-ri-m*	*thi-Ø-m*
3SG	*di-(ri-)m	*di-Ø-m*	*di-Ø-m*
1PL	*ngarri-(ri-)m	*ngirri-Ø-m*	*ngarri-Ø-m*
2PL	*nirri-(ri-)m	*yirri-Ø-m*	*nirri-Ø-m*
3PL	*pirri-(ri-)m	*wirri-Ø-m*	*pirri-Ø-m*

Many Murrinhpatha *dim* compounds have a common semantic element, involving sitting events as in (7a). There are also semantic extensions, involving inanimate objects that are close to the ground as in (7b).

(7) Murrinhpatha

a. *dim-be* > *dimme*
sit.3SG.NFUT-vomit
"vomit (while sitting)"

[9] To take one of the more plausible examples, there could have been a semantic extension from piercing with elongated instruments to directed walking verbs such as 'follow'; this is made more plausible by similar semantic connections in other regional languages (e.g. Nyulnyul 'poke' (McGregor 2018)).

[10] Green provides a reconstruction for this in the past tense (Green 2003: 138). I here extrapolate this into the present/non-future tense, since it is here that the last remains of the root can be found.

b. *thungku* *dim-mum*
fire sit.3SG.NFUT-glow
"fireplace glows"

But there are also two small clusters of compounds that lack any obvious semantic connection to sitting. One such cluster involves rapid walking or running (8a,b). Another cluster involves transitive events where someone collects or gathers (9a-c). These clusters are found both with Murrinhpatha *dim*, and the cognate Ngan'gi *dim* classifier (8c, 9d).

(8) Murrinhpatha

a. *dim-ku*
sit.3SG.NFUT-run.away
"run away"

b. *dim-wuyit* > *dimpuyit*
sit.3SG.NFUT-charge
"(bull) charge at someone, (car) accelerate"
Ngan'gi (Reid & McTaggart 2008: "kuli")

c. *dim-kuli*
sit.3SG.PRS-move.fast
"move quickly, drive fast"

(9) Murrinhpatha

a. *dim-ngawurt*
sit.3SG.NFUT-gather
"capture, gather up, take photographs"

b. *dim-be-kutkut* > *dimmetkut*
sit.3SG.NFUT-arm-collect.PLRCT
"(police) round people up"

c. *dim-ma-kutkut* > *dimmatkut*
sit.3SG.NFUT-APPL-collect.PLRCT
"collect things from people"
Ngan'gi (Reid & McTaggart 2008: "kay")

d. *dim* *kay*
sit.3SG.PRS collect
"collect someone, pick them up"

Again we can never definitively rule out semantic extension, but *prima facie* it looks quite unlikely with meanings as disparate as "sit", "run away" and "collect". Extension from sitting to running, or sitting to collecting, would involve rather drastic semantic shifts. Since *dim* is completely rootless in Murrinhpatha, merge-to-zero may present a more likely explanation. In Ngan'gi there are still vestiges of a root *ri*, but this could be the result of erosion from multiple, previously distinct roots, and/or analogical convergence, to which we will turn in the following sections.

Like Southern Daly *dim*, the rootless Western Daly classifier *ki-* is also strikingly incoherent in its semantics. Green (1989: 347ff.) shows that *ki-* has at least three

semantic clusters: actions with the mouth (10a,b), speech (10c,d), and blocking (10e,f). While mouth and speech look like a clear case of semantic extension, a semantic connection is less obvious for the blocking cluster, and Green (1989: 349) argues that it should be analysed as distinct since it has different valency patterns from the mouth cluster.

(10) Marrithiyel (Green 1989: 349)

a. *ki-vi*
KI.3SR-blow
"blow, smoke"

b. *ki-wuki*
KI.3SR-eat
"eat"

c. *ki-vutjputj*
KI.3SR-tell.story
"tell story"

d. *ki-puritj*
KI.3SR-permit
"permit"

e. *ki-thit-manthi*
KI.3SR-stick-throat
"be stuck in the throat"

f. *ki-wik-yan*
KI.3SR-pour-nose
"nose fill with water"

In a footnote (fn17, page 383), Green notes that there are other *ki-* compounds that do not fit into the three clusters mentioned above, such as *ki-nerri* "look around", *ki-tharri* "depart" and *ki-vup* "give". Thus the semantic incoherence of Western Daly *ki-* is again suggestive of multiple historical sources merging into a single rootless classifier.

4.4. Interim summary

In summary, rootless classifiers in both Southern and Western Daly tend to show a high degree of semantic incoherence. In the case of Murrinhpatha *dam-*, we are fortunately able to show how this incoherence results from a merger of at least two distinct pSD classifiers. For the remaining rootless classifiers, we do not have direct evidence about their historical sources. Although some of their semantic incoherence could be explained by unusual semantic extensions, it seems likely that the merge-to-zero process has also contributed in at least of these some cases, in much the same way as with *dam-*. Thus rootless classifiers suggest an additional number of historical mergers, alongside those evidenced from suppletive roots.

5. Analogical convergence with phonologically realised roots

Suppletive and rootless classifiers offer the strongest evidence of mergers. But it should not be assumed that the remaining classifiers – those with relatively consistent,

phonologically realised roots – are necessarily free of mergers. On the contrary, we have evidence of analogical convergence processes in Daly classifiers, which raises the possibility of mergers in classifiers with phonologically realised roots.

A key factor in potential root mergers is the aforementioned *phonological minimality* of Daly classifier roots. They are usually made up of a single syllable or even a single segment, and if we imagine a once-large class of finite verb roots each being reduced to this length, it is easy to see that some would likely end up homophonous. This is exactly what we saw in the case of Bora-Miraña above, where the concurrent existence of specific nouns and reduced classifiers shows that *kuːmu* and *niːmu* have both reduced to *-mu*. In Daly languages we do not have the benefit of concurrent unreduced forms; but here we find another type of mechanism, driven by the inflectional paradigms of verbal classifiers. As we saw above, each classifier has a large number of inflected forms, and this means that a pair of distinct classifier paradigms need not merge suddenly, but instead can do so incrementally, via analogical levelling that affects classifiers one inflected form at a time.

The evidence for potential mergers with phonologically realised classifier roots depends again on Murrinhpatha, which has the most extensive documentation over the last half century. This shows that classifier paradigms are not static, but rather are subject to processes of variation and change, with analogical convergence as one of the main outcomes. The case is further supported by partial syncretism between some classifiers, and finally by the extent of semantic incoherence in some classifiers with phonologically realised roots.

5.1. Recent analogical convergence in Murrinhpatha

Mansfield and Nordlinger (2020) investigate seven cases of variation and change in Murrinhpatha classifier paradigms, revealed by the extensive data collected since the 1970s. They find that individual forms of some classifiers change by analogy with forms from other classifiers, resulting in increased similarity between classifier paradigms.

One example concerns the somewhat rare classifier *dirrangan-* "watch", and the much more frequent *dim* "sit". Here the PL.NFUT forms recorded in the 1970s were quite distinct, but more recent documentation shows evidence of convergence, as illustrated in Table 11. The older PL.NFUT forms of *dirrangan-* are replaced by new forms, similar or identical to the PL.NFUT forms of *dim*. As Mansfield and Nordlinger observe, this convergence is likely motivated by chance phonological similarities between the two classifiers, where the *rra* root in "watch" happens to resemble *rri* plural formatives that appear in "sit" (Green 2003: 143).

Table 11. Analogical convergence of *dirrangan-* "watch" towards *dim* "sit"

	"watch" 1970s	"sit"	"watch" 2010s
1SG	*ngi-rra-(nga)n-*	*nge-Ø-m*	*ngi-rra-(nga)n-*
2SG	*thi-rra-(nga)n-*	*thi-Ø-m*	*thi-rra-(nga)n-*
3SG	*di-rra-(nga)n-*	*di-Ø-m*	*di-rra-(nga)n-*

1PL	*nga-Ø-ngan-*	*ngarri-Ø-m*	*ngirri-Ø-m*
2PL	*na-Ø-ngan-*	*nirri-Ø-m*	*nirri-Ø-m*
3PL	*pa-Ø-ngan-*	*pirri-Ø-m*	*pirri-Ø-m*

This example of analogical convergence is not unique. Another instance, not documented by Mansfield in Nordlinger, can be seen in a change from *yungan-* "pull.3SG.NFUT" (1970s) to *nungam-* "pull.3SG.NFUT" (2010s). This change most likely involves analogy with the 3SG.NFUT cell of a more frequent finite stem, *nungam* "use feet", again due to chance phonological similarities.

If it appears unusual that Murrinhpatha speakers should draw analogies between distinct classifiers, the degree of root opacity should be kept in mind. A consistent, clear root, as found in the classifier *dilam-* "wipe" in Table 2 above, should bind together the inflectional forms of a classifier, making them resistant to identification with forms of other classifiers. But most Murrinhpatha classifiers are not like *dilam-*. Extensive morphological assimilations and deletions render most roots much more opaque. For example, the Murrinhpatha classifier *nungam* "travel, use feet" can be analysed as having a root *nura*, though the reflexes of this in inflected forms include *nura*, *nu*, *na*, *ni*, *nnu*, *nna*, *nni*, *nne*, each being the product of one or more morpho-phonological processes that are only semi-regular across the classifier system (Mansfield 2016). Root consonants are also mutable, as in *ba(nga)m-* "affect" with root forms *ba*, *be*, *da*, *de*. Thus even in classifiers without suppletion, roots are not necessarily transparent.

5.2. Partially syncretic classifiers

The examples of recent analogical convergence suggest that Murrinhpatha classifier paradigms exert gravitational attraction upon one another, becoming more similar to one another and further reducing root transparency. This process appears to have already occurred in several classifiers, where sub-parts of the paradigm are syncretic. This is found to some degree in Ngan'gi (Reid 1990: 217), and to a greater degree in Murrinhpatha. For example, Table 12 illustrates syncretism of Murrinhpatha *dim* "sit" and *yibim* "lie", which are identical in plural forms. Partial syncretisms are also found between three other pairs of classifiers: *wurran* "go" and *pan- "*slash" in PL.NFUT forms; *dam-* "pierce" and *kanthin* "carry" in IRR forms; *dim* "sit" and *yingam-* "compile" in SG.IRR forms (Mansfield 2019). Comparison with Ngan'gi demonstrates that these syncretisms result from convergence, since Ngan'gi maintains more clearly distinct paradigms for these classifiers. It is also telling that these convergences should occur in classifiers with less transparent roots,[11] which presumably facilitates classifier convergence.

[11] The *-ni* formative in PST 'sit' may look suspiciously like a reflex of a widespread Australian root *ni* 'sit', but Green (2003: 138) convincingly reconstructs this as a SD past marker. The IRR.PL forms contain a formative *yu*, which is difficult to explain.

Table 12. Murrinhpatha partial paradigms for *dim-* "sit", *yibim-* "lie"

	"sit"			"lie"		
	NFUT	PST	IRR	NFUT	PST	IRR
1SG	*nge-Ø-m*	*ngi-Ø-ni*	*ngi-Ø*	*nga-bi-m*	*ngu-Ø-Ø*	*ngu-Ø*
2SG	*thi-Ø-m*	*thi-Ø-ni*	*thi-Ø*	*thi-bi-m*	*thu-Ø-Ø*	*thu-Ø*
3SG	*di-Ø-m*	*di-Ø-ni*	*ki-Ø*	*yi-bi-m*	*yu-Ø-Ø*	*ku-Ø*
1PL	*ngarri-Ø-m*	*ngarri-Ø-ni*	*ngu-yu-Ø*	*ngarri-Ø-m*	*ngarri-Ø-ni*	*ngu-yu-Ø*
2PL	*nirri-Ø-m*	*nirri-Ø-ni*	*nu-yu-Ø*	*nirri-Ø-m*	*nirri-Ø-ni*	*nu-yu-Ø*
3PL	*pirri-Ø-m*	*pirri-Ø-ni*	*pu-yu-Ø*	*pirri-Ø-m*	*pirri-Ø-ni*	*pu-yu-Ø*

Convergence and syncretism may also occur in Murrinhpatha classifiers with more transparent roots. In fact there is one pair of Murrinhpatha classifiers, *mam-* "hands" and *mangan-* "grab", where convergence is almost complete. Fortunately, the historical distinction is clarified by Ngan'gi cognates, as shown in Table 13.[12]

Table 13. "Hands" and "grab" classfiers in Southern Daly

SEMANTICS	NGAN'GI	MURRINHPATHA
"hands"	*demim-* (root *mi*)	*mam-* (root *ma*)
"grab"	*menggin-* (root *menggi*)	*mangan-* (root *manga*)

In Ngan'gi there is a robust formal distinction between classifiers *demim-* "hands" and *menggin-* "grab", with no identical inflected forms. But in Murrinhpatha the distinction hangs by a thread. The "grab" root *manga* has been reduced to *ma~me* in PST and IRR cells, making it identical with the "hands" forms, as shown in Table 14.

Table 14. Murrinhpatha partial paradigms for *mam-* "hands", *mangan-* "grab"

	"hands"			"grab"		
	NFUT	PST	IRR	NFUT	PST	IRR
1SG	*Ø-ma-m-*	*Ø-me-Ø-*	*Ø-ma-*	*Ø-manga-n-*	*Ø-me-Ø-*	*Ø-ma-*
2SG	*Ø-na-m-*	*Ø-ne-Ø-*	*Ø-na-*	*Ø-nanga-n-*	*Ø-ne-Ø-*	*Ø-na-*
3SG	*Ø-ma-m-*	*Ø-me-Ø-*	*Ø-ma-*	*Ø-manga-n-*	*Ø-me-Ø-*	*Ø-ma-*
1PL	*ngu-ma-m-*	*ngu-me-Ø-*	*ngu-ma-*	*ngu-manga-n-*	*ngu-me-Ø-*	*ngu-ma-*
2PL	*nu-ma-m-*	*nu-me-Ø-*	*nu-ma-*	*nu-manga-n-*	*nu-me-Ø-*	*nu-ma-*
3PL	*pu-ma-m-*	*pu-me-Ø-*	*pu-ma-*	*pu-manga-n-*	*pu-me-Ø-*	*pu-ma-*

This leaves distinctions only in the NFUT cells, but even here the distinction is not consistently maintained. The residual distinction between *mam-* and *mangan-* depends on a rather unusual alternation, with the *manga* root maintained in some verb forms (11a), but replaced by *ma* in the presence of certain suffixes such as *-ngintha* "DU.F" (11b). Thus the two classifiers have moved even closer together than Table 14 may suggest. In this case, the analogical convergence of the two classifiers may have received an additional boost from semantic similarity. *Mangan-* "grab" appears in just a few compounds, all of

[12] I thank Rachel Nordlinger (p.c.) for pointing out to me the cognacy of *menggin- ~ mangan-*. Based on this, I disagree with an alternative analysis, proposaing that Murrinhpatha classifiers *mam- ~ mangan-* are the result of inflectional variation, rather than distinct sources (Mansfield 2019).

which involve grasping with the hands; *mam-* "hands" has a larger set of compounds and many of these do indeed involve manipulation with the hands.

(11) Murrinhpatha

a. *Ø-manga-n-tha*
3SG-grab-NFUT-catch
"(s)he caught it"

b. *Ø-ma-m-ngintha-tha*
3SG-grab-NFUT-DU.F-catch
"the two of them caught it"

5.3. Semantic incoherence with phonologically realised roots

We have seen that analogical convergence is far advanced in several Murrinhpatha classifiers, and we also have direct evidence of how the convergence process unfolds in recent language change. This raises the question of whether some classifiers are already the product of analogical mergers that have reached completion. If this were to have occurred, then it should result in semantic incoherence, with the merged classifier being used in semantically disparate groups of verbs. This is exactly what we find.

Several Western Daly classifiers with phonologically realised roots are described as having multiple semantic clusters that are not obviously related. The classifier *kumun* "pierce" (a.k.a. "poke" or "paint") has a large cluster of verbs involving a pointed instrument, much as described for pSD *da(ri)ngim "pierce". But there are also many other *kumun* compounds that do not belong to this cluster, such as *kumun-nje* "smell", *kumun-eri* "tell a lie", *kumun-madil* "lift", *kumun-mayit* "have hiccups" (Green 1989: 340–341; Bicevskis 2023: 199). Several compounds also have a different argument configuration from the "pierce" verbs: compare *ngumun-sridim* "I sew it", with human agent as subject, versus *kumun-ngi-mayit* "I have hiccups", with human experiencer as object marked with an additional affix *-ngi* 1SG.O. Similar observations could be made regarding *kiny-* "slash" (a.k.a. "swing") (Green 1989: 344; Bicevskis 2023: 201), and even more so for *kidin* "see" (a.k.a. "cause"), which has been described for Marrithiyel as having three distinct semantic clusters (Green 1989: 351), and for Marri Ngarr as having "no obvious semantic connection" between its various compounds (Bicevskis 2023: 209). Some flavour of this semantic incoherence can be gleaned from a selection compounds such as *kidin-mel* "watch", *kidin-vadu* "push over", *kidin-werrk* "hide something", and *kidin-bubu* "pour".

In Murrinhpatha there has been less work on semantic description of classifiers. But one reason for this may be the difficulty of finding semantic commonalities among the compounds that share a classifier. For example, the classifier *ba(nga)m-* "affect" (root *ba*) has one coherent cluster involving blows with a blunt or heavy instrument such as *bangam-rde* "punch", *bangam-parl* "smash", *bangam-rtal* "chop with axe" (Nordlinger 2010). But there are also many *ba(nga)m-* compounds that do not fit this characterisation, such as *bangam-kat* "pass by", *bangam-burr* "cool down", *ba(nga)m-yegarl* "fall", *bangam-gatkat* "be sated", *bangam-lilil* "be in the middle", *bam-ngkardu* "see", *ba(nga)m-kurduk*

"drink", *ba(nga)m-lele* "bite" (see also Street 2012; Mansfield 2019: 199). Although *ba(nga)m-* likely reflects a historical verb "hit", the extent of semantic incoherence suggests that this could have merged with other historical verbs.[13]

In the description of Ngan'gi classifiers (Reid 1990) there are again cases of incoherence. For example the *yentyin* "take" classifier (root *tyi*), has a cluster of verbs involving carrying or transport, but also has compounds such as *yentyin-si* "cut oneself" and *yentyin-melpe* "squash" (Reid 1990: 245). Similarly, *de(mi)m* "hands" (root *mi*) has a cluster of verbs involving grasping with the hands, but also compounds involving unpleasant or uncontrollable experiences such as *demim-yiri* "be numb", *demim-tip* "have the flu", *demim-tyerr-tati* "yawn" (Reid 1990: 248).

The extensive semantic incoherence in Daly classifiers with phonologically realised roots is compatible with a history of mergers. In addition, we have evidence of how such mergers might have occurred, thanks to observable cases of analogical convergence. This suggests that the extent of historical mergers in Daly verbal classifiers goes beyond the suppletive and rootless classifiers. Even apparently unitary classifiers such as Western Daly *kumun* "pierce" and Murrinhpatha *bangam-* "affect" may be reflexes of previously distinct classifiers, which have reached completion in the analogical convergence process. This would then explain their notable lack of semantic coherence. In summary, classifier mergers, occurring either through erosion or analogy, are intimately related to the loss of semantic transparency found in these systems.

6. Towards a diachronic model of class reduction

Thus far I have marshalled multiple sources of evidence for historical mergers in Daly verbal classifiers. Classifiers with suppletive roots, rootless classifiers, and even those with phonologically realised roots, all show various types of formal or semantic evidence that they may derive from multiple historical sources. In this section I reflect more generally on how mergers may contribute to the process of set reduction in classifier systems. I begin by briefly summarising the findings on obsolescence and mergers in Daly verbal classifiers, and reviewing how these findings contribute to an understanding of the diachronic pathway from verbal classifiers to morphological classes. I then turn to a general consideration of the conditions that should favour mergers in classifier systems, with particular attention to the dynamics of information load.

6.1. Obsolescence and mergers in Daly verbal classifiers

Though this article focuses on mergers, it is clear that obsolescence also plays some role in class set reduction. We saw evidence that lexical obsolescence has occurred in Nyulnyulan and Mirndi verbal classifiers. We also saw some minor evidence of obsolescence in Southern Daly, though as noted above, both Southern Daly and

[13] A reviewer suggests another possibility, that lexical borrowing could contribute homophonous but semantically unrelated verbs, for example if Murrinhpatha had *bangam-* 'hit', and then borrowed an inflecting verb that could have formed the base of other compounds such as *bangam-lilil* 'be in the middle'. I have not systematically searched for evidence of such borrowings, but one factor making them less likely could be the barriers to borrowing in richly inflected verbal systems (Wohlgemuth 2009).

Western Daly have largely parallel classifier sets, which suggests that obsolescence has been relatively modest in these families.

Lexical obsolescence is part of a much more general linguistic phenomenon: in all languages at all times, lexemes fall out of usage. Most classifier systems have some classifiers that occur in just a handful of complex predicates, so the obsolescence of a classifier is simply the case where the last such complex predicate ceases to be used, as we saw for Murrinhpatha's obsolete classifier *kanthangan-*. Mergers on the other hand are more exotic, and require more specific circumstances. I propose that in Daly verbal classifier systems there have been multiple mergers, perhaps even a very large number. But these mergers are very different from the English *post* example mentioned in the introduction, due to two factors: surrounding inflectional material, and being bound to lexical compounds. These form the basic conditions for classifier mergers.

6.2. Australian pathways from verbal classifiers to class markers

The loss of semantic incoherence is one of the key diagnostics in arguing for Daly classifier mergers. Many classifiers occur in a range of verbal compounds that lack any unifying semantic property. I have argued that it is likely to be driven in part by mergers between semantically distinct classifiers, repeatedly forming "super-classes" that gradually become more semantically incoherent. This has the effect of moving Daly verbal classifiers along a cline towards the status of purely formal morphological classes.

Previous work on Murrinhpatha has also observed that some "classifiers" resemble conjugation-class markers, where the historical classifier root behaves like a thematic element in an inflectional paradigm (Mansfield 2019: 200). For example, verbal compounds with *bangam-* do not have a unifying semantic element, and therefore the historic root *ba* now functions like the thematic element in a conjugation class. This classifier-to-class pathway may reiterate a similar process proposed for Gunwinyguan verbal thematics (Evans 2003: 345). There may also be parallels in the much larger Pama-Nyungan family, which is characterised by conjugation classes with thematic consonants (Dixon 1980). One potential explanation that has been proposed for these Pama-Nyungan verbal classes is that they derive from ancient verbal compounds (Merlan 1979; McGregor 2002: 352), perhaps somewhat resembling the classifier constructions described in this paper. Although alternative scenarios have also been suggested for Pama-Nyungan (Dixon 1980; Alpher et al. 2003), classifier-to-class pathways in Daly and Gunwinyguan languages provide circumstantial support for the reduced-compounds theory of Pama-Nyungan conjugation classes.

6.3. Low information load

The distributional properties of Daly verbal classifiers tend to make them quite uninformative about lexical meaning, and this may be a major factor facilitating erosion and mergers. In both Southern and Western Daly, the majority of classifiers occur only in complex predicates (lexical compounds), and never in their own right as simple verbs. Lexical compounding shares the information load of verbal meaning between two

elements, but the statistical distribution of these elements shifts the load onto the coverb side. In general, classifiers occur with many different coverbs, in some cases up to a hundred or more. But coverbs tend to occur with just a few classifiers, or a single classifier. For example, the Murrinhpatha classifier *dam-* occurs with over a hundred coverbs; but the coverb *-rtiwak* occurs only with the classifier *dam-*, in the compound *dam-rtiwak* "follow".

The asymmetric relation between coverbs and classifiers has been documented for other Australian classifier systems such as Nyulnyulan (Bowern 2010; McGregor 2018). For Murrinhpatha it has been quantified in some detail, focusing on the tendency of coverbs to occur predictably with a few classifiers, or sometimes only one classifier (Mansfield 2021). Mansfield uses a corpus of some 6000 compound verb tokens, taken from naturalistic speech, to calculate the predictability with which classifiers are selected given a certain coverb. In bound-classifier compounds, involving classifiers such as *dam-* or *bangam-*, there is generally very low conditional surprisal of classifier selection, given the coverb. For example, given the coverb *-rtiwak*, the surprisal of classifier selection is zero, since it always selects *dam-rtiwak* "follow" in the corpus data. Some other coverbs do show a degree of unpredictability in bound classifier selection, for example *-yemut* is found in both *dam-yemut* "refuse" *kanam-yemut* "refuse repeatedly", though the former compound is more frequent, giving an average classifier surprisal for *-yemut* of 0.81. The overall average surprisal of classifiers in such constructions is 0.44, meaning that they are in general highly predictable, and examples such as the coverb *-rtiwak* are fairly typical. For context, conditional surprisal of 1 bit would represent equal probability of two distinct classifiers, and in German complex verbs, preverb surprisal given a lexical stem averages 1.90 bits, indicating that German preverbs are selected much more unpredictably than Murrinhpatha classifiers (Mansfield 2021). Following the standard interpretation of surprisal as a measure of informativeness (Shannon 1948), we can say that in Murrinhpatha verbal compounds, the classifiers provide rather little information about the intended message. The coverb is the main locus of lexical information, and classifiers are rather redundant in this respect.

A schematic example of Murrinhpatha verbal compounds, shown in Figure 1, illustrates the informational dynamics of the system, and will allow us to consider hypothetical erosion scenarios. The example reflects the main distributional property of Murrinhpatha complex verb constructions: classifiers combine with many coverbs, but coverbs combine with few classifiers (and in many cases with just one classifier). Most coverbs in Figure 1 combine with a single classifier, though two coverbs, *-mum* and *-kay*, combine with two different classifiers. The combinations generate 18 distinct wordforms, with distinct meanings. We can quantify this information in bits, where 18 possible meanings produce up to 4.17 bits of entropy.[14] This gives us a baseline for considering how much information is lost under different erosion scenarios.

[14] This upper limit would be reached if all messages were equiprobable. The quantity of bits for n equiprobable messages is given by $\log_2(n)$.

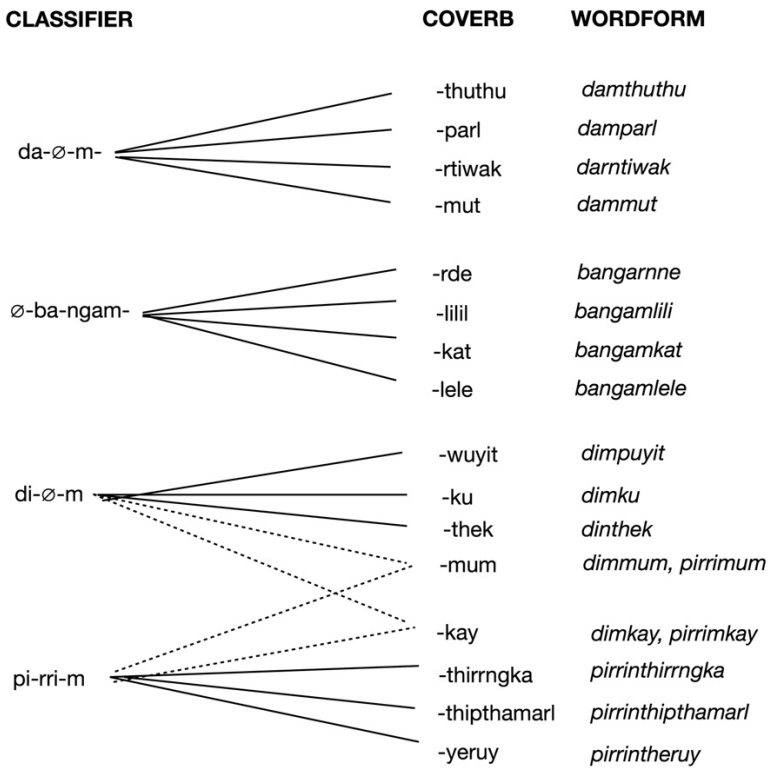

Figure 1. Schematic of information load in Murrinhpatha complex verbs

Firstly, let us imagine the complete erosion of all coverbs, or more formally, the replacement of each by zero. This would result in just 4 distinct wordforms, *dam*, *bangam*, *dim*, *pirrim*, giving an entropy of 2 bits and an information loss of 2.17 bits. Coverbs carry a lot of information.

If we instead imagine the complete erosion of roots in those classifiers that still have them, this would not result in any information loss. Most wordforms would still have a distinctive coverb, and in the few cases where a coverb appears with more than one classifier (*-mum* and *-kay*), the loss of classifier root does not collapse the distinction between wordforms. Distinctions are maintained by the suppletive allomorphy of pronominal prefixes. For example in *dim-mum* and *pirrim-mum*, one classifier (*dim*) is already rootless, and if the root from the other classifier (*pirrim*) were deleted, we would still have distinct forms, *dim-mum* and *pim-mum*. Thus the loss of classifier roots has little or no effect on maintaining lexical distinctions in compound wordforms.

Finally, since there is also analogical convergence in the inflected forms of classifiers, we might consider a combined process of root erosion and inflectional convergence. This would introduce some information loss, as the distinctions *dim-mum* vs *pirrim-mum* and *dim-kay* vs *pirrim-kay* would collapse. Instead of 18 distinct wordforms, there would now be only 16, in informational terms a modest loss from 4.17 bits to 4 bits. Because multiple classifications of coverbs is relatively rare, the degree of information loss caused by classifier mergers is rather small.

In summary, the schematisation illustrates how the lexical information load of Murrinhpatha verbs is mostly carried by coverbs. Classifier roots carry no information load whatsoever in this example, and inflectional allomorphy carries only a small load. If we assume a constant pressure for brevity or effort reduction (e.g. Levshina 2022), then in Murrinhpatha verbs this pressure would most efficiently target classifier roots, since they carry so little information. Together with analogical convergence of inflected forms, root reduction would lead to mergers which reduce the number of distinct classifiers.

6.4. General conditions for mergers in classifier systems

If mergers have played a substantial role in the reduction of Daly verbal classifier systems, this raises the question of whether this is a regional peculiarity, or whether a similar dynamic is at work in other classification systems, either verbal or nominal. As mentioned above, Seifart (2018) has shown evidence for mergers in the nominal classification system of Bora-Miraña, and we might therefore wonder how widespread such processes have been.

Based on the Daly case study, I suggest the following four conditions that can be expected to facilitate mergers in classifier systems:

1. Boundedness: classifiers appear exclusively or predominantly in morphologically composite constructions, rather than as standalone lexemes. Lack of standalone lexical usage facilitates loss of independent meaning.
2. Asymmetry: classifiers combine with many nouns/verbs, but the nouns/verbs tend to combine with just one classifier. This removes information load from the classifiers within bound constructions.
3. Inflection: classifiers are entangled with the marking of inflectional categories. The resulting morpho-phonological alternations tend to make classifier roots less phonologically transparent, and facilitate analogical convergence.
4. Prosodic weakness: classifiers occur in a position of low prosodic prominence, which is conducive to erosion of classifiers.

Condition 1, boundedness, appears to be relatively common in both verbal and nominal classifier systems. In northern Australian verbal classifiers (McGregor 2002), and in comparable systems such as the verbal classifiers of Mosetén (Sakel 2011), there are usually at least some classifiers that are bound, never appearing as independent simple verbs. For nominal classifiers, those systems which are realised purely as agreement, on determiners, adjectives etc, also satisfy boundedness. All else being equal, we should expect more mergers in classifier systems with greater boundedness. On this basis, Daly verbal classifiers should be highly susceptible to mergers, since the majority of classifiers in these systems are bound.

Condition 2, asymmetry, is a definitional property of classifier and class systems, though the asymmetry is more extreme in class systems, where the number of classes is fewer (Dixon 1982: 211–233). We saw above that from an information-theoretic

perspective, this asymmetry reduces the information load of classifiers or classes. This is a self-perpetuating dynamic, where reducing the number of classes reduces their information load, thus facilitating further set reduction. However the information-reduction model above focuses on lexical meanings, and it is possible that verbal classifier semantics may evolve in a different direction, for example coming to express paradigmatic aspectual distinctions. This has been suggested as one reason why verbal classifier systems are less common than nominal classifier systems (Bisang 2018): if verbal classifiers are likely to grammaticalise into aspectual markers, this might constitute a powerful attractor state that makes the classifier state less common.

Condition 3, inflection, is present in all verbal classifier systems where the classifier hosts inflectional marking of TAM and/or pronominal agreement. But in nominal classifiers, systems may be entangled with number or deictic categories, or they may be the only inflectional category in the noun phrase. All else being equal, this predicts more frequent root opacity in verbal classifier systems, facilitating more mergers. Morpho-phonological entanglement with verbal inflectional categories may push verbal classifiers to devolve into semantically empty conjugation class systems, providing an alternative or complementary explanation to Bisang's (2018) proposal about verbal classifier instability.

Condition 4, prosodic weakness, appears to be equally applicable to verbal or nominal classifiers. Erosion of phonological material increases the probability of chance similarities between classifiers, and therefore increases the chance of mergers. We might expect medial and final positions in prosodic domains to be more conducive to erosion than initial positions (e.g. Lavoie 2001; Katz 2016; Cho 2016), as is the case in Murrinhpatha. However the distribution of prosodic prominence has some language-specific properties (Jun 2005), which implies that erosion environments are also language-specific. For example Western Daly languages may have more word-initial prosodic weakness (Mansfield & Green 2021). We saw above that within Southern Daly, Murrinhpatha classifiers have undergone more root erosion than Ngan'gi classifiers, apparently due to language-particular patterns of consonant lenition and deletion. This suggests that prosodic weakness may be something of a wildcard factor, favouring mergers and class reduction in some classifier systems more than others, independent of the grammatical dynamics of conditions 1–3.

In summary, the dynamics of classifier mergers in Daly compound verbs suggest broader predictions about where we should expect mergers to occur. Further research could on the one hand test these predictions against reconstructible classifiers, checking whether other systems show evidence of mergers, and whether these appear under the conditions described above. In the absence of reconstructible histories, the proposed conditions could also be used to develop testable cross-linguistic hypotheses about what kinds of classifier systems we should expect to find where (Bickel 2007). For example, we might predict that systems with greater inflectional entanglement have fewer classes, or that lower information load of classifiers (as measured probabilistically from corpora) would correlate with semantic incoherence.

7. Conclusion

In this article I have addressed the historical dynamics of verbal classifier systems, where a small number of classifiers combine with a larger class of lexical stems to produce a verbal lexicon. Focusing on the examples of Southern Daly and Western Daly, I have argued that both obsolescence and mergers have contributed to a long-term process of class reduction, from standard finite verbs, to a smaller set of verbal classifiers, and eventually leading to a very small set of semantically vacuous conjugation classes. Daly languages are at an advanced point in the classifier stage, with extensive semantic incoherence.

I discussed lexical obsolescence in Daly verbal classifiers only briefly, pointing out that it appears to have had a fairly limited effect within the reconstructible history, removing a handful of classifiers from each daughter language in Southern Daly. My main focus has been instead on mergers, for which I find considerable evidence in both Southern and Western Daly. The most obvious evidence comes from root suppletion in both families, suggesting that contemporary classifiers derive from multiple historical verbs. But a more complete reconstruction of a merger in found Southern Daly rootless classifiers, where we can see how the complete erosion of roots in two distinct historical classifiers produces a single merged classifier in Murrinhpatha. Indirect evidence from the semantic incoherence of other rootless classifiers suggests that this merge-to-zero process is likely to have occurred multiple times, beyond the one example that we are fortunate enough to have caught red-handed. Finally, I reviewed evidence for analogical convergence processes, which may have contributed yet more mergers, even in classifiers that have a consistent, phonologically realised root.

The main aim of this article has been to show that mergers have played a substantial role in the class-reduction process for Daly verbs. This is unexpected, since mergers are marginal phenomena in language history. But beyond the findings of this particular case study, it is hoped that the dynamics identified may be applicable to classifier systems in other language families. To that end, I have outlined the main conditions facilitating mergers in Daly verbal classifiers, with a view to investigating these conditions in other systems.

References

Acuña-Fariña, Juan Carlos. 2009. The linguistics and psycholinguistics of agreement: A tutorial overview. *Lingua* 119(3). 389–424. (doi:10.1016/j.lingua.2008.09.005)

Aikhenvald, Alexandra Y. 2003. *Classifiers: A typology of noun categorization devices* (Oxford Studies in Typology and Linguistic Theory). Oxford, New York: Oxford University Press.

Alpher, Barry & Evans, Nicholas & Harvey, Mark. 2003. Proto Gunwinyguan verb suffixes. In Evans, Nicholas (ed.), *The non-Pama-Nyungan languages of northern Australia*, 305–352. Canberra: Pacific Linguistics.

Arnon, Inbal & Ramscar, Michael. 2012. Granularity and the acquisition of grammatical gender: How order-of-acquisition affects what gets learned. *Cognition* 122. 292–305.

Aronoff, Mark. 1998. Isomorphism and monotonicity. In Lapointe, S. & Brentari, D. & Farrell, P. (eds.), *Morphology and its relation to phonology and syntax*, 411–418. Stanford: CSLI.

Barone-Nugent, Ben. 2008. *Event classification: A cognitive semantic analysis of two Murrinh- Patha event categories*. University of Melbourne. (Honours thesis.)

Bicevskis, Katie. 2023. *A grammatical description of Marri Ngarr*. University of Melbourne. (PhD thesis.) (http://hdl.handle.net/11343/336965)
Bickel, Balthasar. 2007. Typology in the 21st century: Major current developments. *Linguistic Typology* 11(1). 239–251. (doi:10.1515/LINGTY.2007.018)
Bisang, Walter. 2018. Nominal and verbal classification: A comparative perspective. In McGregor, William B. & Wichmann, Søren (eds.), *The Diachrony of Classification Systems* (Current Issues in Linguistic Theory), 241–282. John Benjamins Publishing Company. (doi:10.1075/cilt.342.11mcg)
Blythe, Joe. 2009. *Doing referring in Murriny Patha conversation*. University of Sydney. (PhD thesis.)
Bowern, Claire. 2008. The reconstruction of Nyulnyulan complex predication. *Diachronica*. John Benjamins 25(2). 186–212. (doi:10.1075/dia.25.2.04bow)
Bowern, Claire. 2010. The typological implications of Bardi complex predicates. *Linguistic Typology* 14. 39–70.
Bowern, Claire. 2012. *A grammar of Bardi*. Berlin: Mouton.
Bowern, Claire. 2014. Complex predicates in Australian languages. In Koch, Harold & Nordlinger, Rachel (eds.), *The languages and linguistics of Australia: a comprehensive guide*, 263–294. Berlin: Mouton de Gruyter.
Chafe, Wallace. 1998. How a Historical Linguist and a Native Speaker Understand a Complex Morphology. In Schmid, Monika S. & Austin, Jennifer R. & Stein, Dieter (eds.), *Historical Linguistics 1997: Selected papers from the 13th International Conference on Historical Linguistics, Düsseldorf, 10–17 August 1997* (Current Issues in Linguistic Theory), 101. John Benjamins Publishing Company. (doi:10.1075/cilt.164.07cha)
Cho, Taehong. 2016. Prosodic boundary strengthening in the phonetics–prosody interface. *Language and Linguistics Compass* 10(3). 120–141. (doi:10.1111/lnc3.12178)
Comrie, Bernard & Zamponi, Raoul. 2019. Verb root ellipsis. In Baerman, Matthew & Bond, Oliver & Hippisley, Andrew (eds.), *Morphological perspectives: Papers in honour of Greville G. Corbett*, 233–280. Edinburgh University Press.
Contini-Morava, Ellen & Kilarski, Marcin. 2013. Functions of nominal classification. *Language Sciences* 40. 263–299. (doi:10.1016/j.langsci.2013.03.002)
Dahl, Osten. 2004. *The growth and maintenance of linguistic complexity*. Amsterdam: John Benjamins.
DeLancey, Scott. 2009. Bipartite verbs in languages of western North America. In Filchenko, Andrei & Potatina, Olga (eds.), *Time and Space in Languages of Various Typology*. Tomsk: Tomsk State Pedagogical University.
Dixon, R. M. W. 1986. Noun classes and noun classification in typological perspective. In Craig, Colette G. (ed.), *Noun Classes and Categorization: Proceedings of a symposium on categorization and noun classification, Eugene, Oregon, October 1983* (Typological Studies in Language), 105–112. John Benjamins Publishing Company. (doi:10.1075/tsl.7.09dix)
Dixon, R.M.W. 1980. *The languages of Australia*. Cambridge: Cambridge University Press.
Dixon, R.M.W. 1982. *Where have all the adjectives gone? And other essays in semantics and syntax*. Berlin: Mouton de Gruyter.
Dixon, R.M.W. 2002. *Australian languages: Their nature and development*. Cambridge: Cambridge University Press.
Durkin, Philip. 2016. Etymology, word history, and the grouping and division of material in historical dictionaries. In Durkin, Philip (ed.), *The Oxford handbook of lexicography*, 236–253. Oxford: Oxford University Press.
Evans, Nicholas. 2003. *Bininj Gun-Wok: a pan-dialectal grammar of Mayali, Kunwinjku and Kune*. Canberra: Pacific Linguistics.
Foley, William A. 2018. The languages of the Sepik-Ramu basin and environs. In Palmer, Bill (ed.), *The languages and linguistics of the New Guinea area*, 197–431. Berlin: De Gruyter Mouton. (doi:10.1515/9783110295252-002)
Green, Ian. 1989. *Marrithiyel: a language of the Daly River region of Australia's Northern Territory*. Canberra: Australian National Univeristy. (PhD.) (https://openresearch-repository.anu.edu.au/handle/1885/10926)
Green, Ian. 2003. The genetic status of Murrinh-patha. In Evans, Nicholas (ed.), *The non-Pama-Nyungan Languages of Northern Australia*, 125–158. Canberra: Pacific Linguistics.
Green, Ian & Nordlinger, Rachel. 2022. The Daly Languages. Web resource. (http://dalylanguages.org)
Grinevald, Collette. 2000. A morphosyntactic typology of classifiers. In Senft, Gunter (ed.), *Systems of nominal classification*, 50–92. Cambridge University Press.
Harvey, Mark. 2008. *Proto-Mirndi: A discontinuous language family in northern Australia*. Canberra: Pacific Linguistics.

Heath, Jeffrey. 1997. Lost wax: Abrupt replacement of key morphemes in Australian agreement complexes. *Diachronica* 14(2). 197–232. (doi:10.1075/dia.14.2.02hea)
Heath, Jeffrey. 1998. Hermit crabs: Formal renewal of morphology by phonologically mediated affix substitution. *Language* 74(4). 728–758.
Jun, Sun-Ah. 2005. *Prosodic typology: The phonology of intonation and phrasing*. Oxford: Oxford University Press.
Katz, Jonah. 2016. Lenition, perception and neutralisation. *Phonology* 33(1). 43–85.
Lavoie, Lisa M. 2001. *Consonant strength: Phonological patterns and phonetic manifestations*. New York: Garland.
Levshina, Natalia. 2022. *Communicative efficiency: Language structure and use*. Cambridge: Cambridge University Press.
Mansfield, John. 2016. Intersecting formatives and inflectional predictability: How do speakers and learners predict the correct form of Murrinhpatha verbs? *Word Structure* 9(2). 183–214.
Mansfield, John & Green, Ian. 2021. Fricative contrasts and neutralization in Marri Tjevin. *Australian Journal of Linguistics*. Routledge 41(2). 220–261. (doi:10.1080/07268602.2021.1957774)
Mansfield, John & Nordlinger, Rachel. 2020. Demorphologisation and deepening complexity in Murrinhpatha. In Gardani, Francesco & Arkadiev, Peter M. (eds.), *Morphological complexity*, 52–80. Oxford: Oxford University Press.
Mansfield, John Basil. 2019. *Murrinhpatha morphology and phonology*. Berlin: De Gruyter Mouton.
Mansfield, John Basil. 2021. The word as a unit of internal predictability. *Linguistics*. De Gruyter Mouton 59(6). 1427–1472. (doi:10.1515/ling-2020-0118)
McGregor, William. 2002. *Verb classification in Australian languages*. Berlin: Mouton de Gruyter.
McGregor, William B. 2018. The history of verb classification in Nyulnyulan languages. In McGregor, William B. & Wichmann, Søren (eds.), *The Diachrony of Classification Systems* (Current Issues in Linguistic Theory), 315–352. John Benjamins Publishing Company. (doi:10.1075/cilt.342.11mcg)
McGregor, William B. & Wichmann, Søren (eds.). 2018. *The diachrony of classification systems*. *cilt.342*. Amsterdam: John Benjamins Publishing Company.
Mel'cuk, Igor. 2006. Gender and noun class. *Aspects of the theory of morphology*, 322–383. De Gruyter Mouton. (doi:10.1515/9783110199864.2.322)
Merlan, Francesca. 1979. On the prehistory of some Australian verbs. *Oceanic Linguistics*. University of Hawai'i Press 18(1). 33–112. (doi:10.2307/3622837)
Nordlinger, Rachel. 2010. Verbal morphology in Murrinh-Patha: Evidence for templates. *Morphology* 20(2). 321–341.
Nordlinger, Rachel. 2012. Complex predicates in Murrinh-Patha: Problems for analysis. University of Western Australia.
Nordlinger, Rachel. 2017. The languages of the Daly River region (Northern Australia). In Fortescue, Michael & Mithun, Marianne & Evans, Nicholas (eds.), *Oxford handbook of polysynthesis*, 347–371. Oxford: Oxford University Press.
Nordlinger, Rachel & Caudal, Patrick. 2012. The tense, aspect and modality system in Murrinh-Patha. *Australian Journal of Linguistics* 32(1). 73–112.
Osgarby, David & Bowern, Claire. 2023. Complex predication and serialization. In Bowern, Claire (ed.), *The Oxford Guide to Australian Languages* (Oxford Guides to the World's Languages), 291–308. Oxford University Press.
Qureshi, Uswa. 2023. *A Description of Marri Tjevin Complex Verbs: Forms, Semantics, and the Serial Function of the Verbal Classifier*. University of Melbourne. (Honours thesis.)
Reid, Nicholas. 1990. *Ngan'gityemerri: A language of the Daly River region, Northern Territory of Australia*. Canberra: Australian National Univeristy. (PhD thesis.)
Reid, Nicholas & McTaggart, Patricia. 2008. *Ngan'gi dictionary*. Armidale: Australian Linguistics Press.
Sakel, Jeanette. 2011. A Grammar of Mosetén. *A Grammar of Mosetén*. De Gruyter Mouton. (doi:10.1515/9783110915280)
Schultze-Berndt, Eva. 2000. *Simple and complex verbs in Jaminjung*. Nijmegen: Katholieke Universiteit Nijmegen. (PhD thesis.)
Schultze-Berndt, Eva. 2003. Preverbs as an open word class in Northern Australian languages: synchronic and diachronic correlates. In Booij, Geert & van Marle, Jaap (eds.), *Yearbook of Morphology 2003*, 145–177. Amsterdam: Kluwer Academic Publishers.
Seifart, Frank. 2018. The semantic reduction of the noun universe and the diachrony of nominal classification. In McGregor, William B. & Wichmann, Søren (eds.), *The Diachrony of Classification Systems* (Current Issues in Linguistic Theory), 9–32. John Benjamins Publishing Company.

Seiss, Melanie. 2013. *Murrinh-Patha complex verbs: Syntactic theory and computational implementation*. Konstanz: Universitaet Konstanz. (PhD thesis.)
Shannon, Claude E. 1948. A mathematical theory of communication. *Bell System Technical Journal* 27(3). 379–423.
Street, Chester. 1987. *An introduction to the language and culture of the Murrinh-Patha*. Darwin: Summer Institute of Linguistics.
Street, Chester. 2012. *Murrinhpatha to English dictionary*. Wadeye Literacy Production Centre.
Tichý, Ondřej. 2018. Lexical obsolescence and loss in English: 1700–2000. In Kopaczyk, Joanna & Tyrkkö, Jukka (eds.), *Applications of Pattern-driven Methods in Corpus Linguistics* (Studies in Corpus Linguistics), 81–104. John Benjamins Publishing Company. (doi:10.1075/scl.82.04tic)
Walsh, Michael. 1976. *The Murinypata language of north-west Australia*. Canberra: Australian National University. (PhD thesis.)
Wohlgemuth, Jan. 2009. *A typology of verbal borrowing*. Berlin: Mouton de Gruyter.

Résumé

Dans cet article, j'étudie le processus diachronique par lequel les systèmes de classificateurs subissent une réduction de leurs ensembles et une dissolution sémantique, les transformant ainsi en des classes purement morphologiques. En m'appuyant sur la littérature existante, j'identifie deux mécanismes possibles : l'obsolescence et les fusions, chacun réduisant un ensemble de classificateurs d'une unité. À travers une étude de cas sur les classificateurs verbaux dans les langues Daly du nord de l'Australie, je trouve de nombreuses preuves de fusions, suggérant qu'elles jouent un rôle majeur dans la réduction des classes.

Zusammenfassung

In diesem Artikel untersuche ich den diachronen Prozess, bei dem Klassifikatorsysteme eine Reduktion ihres Sets und eine semantische Auflösung erfahren, wodurch sie sich zu rein morphologischen Klassen entwickeln. Basierend auf früherer Literatur identifiziere ich zwei mögliche Mechanismen, Obsoleszenz und Fusionen, von denen jeder ein Set von Klassifikatoren um einen reduziert. In einer Fallstudie zu verbalen Klassifikatoren in den Daly-Sprachen im Norden Australiens finde ich umfangreiche Belege für Fusionen, was darauf hindeutet, dass sie eine zentrale Rolle bei der Reduktion von Klassen spielen.

Author

John Mansfield
john.mansfield@uzh.ch
Department of Comparative Language Sciences
University of Zurich
Affolternstrasse 56, Zurich 8050
Switzerland