
THE LOSS OF MORPHOLOGY AND THE EMERGENCE OF ANALYTIC STRUCTURES IN CHINESE

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ABSTRACT In this article, we propose that the derivational morphology of Archaic Chinese was hosted in a split VP (adopting the structure proposed in [Ramchand 2008](#)), and that its loss was one of the triggers for a change of Chinese from a more synthetic to an analytic language. The discussion focusses on the resultative reading of the *-s suffix, and we propose that its basic function was an overt *res* head in the sense of [Ramchand \(2008\)](#) with both unaccusative/intransitive and causative/transitive verbs. This way, we unify the two major functions – valency decreasing, and valency increasing – proposed for the suffix in the literature so far. The increasing opacity of the verbal morphology at the end of the LAC period triggered the emergence of new structures such as disyllabification of verbs and the emergence of resultative constructions including the source structures of the Modern Mandarin aspectual suffixes, which started to replace the old morphology. The new structures were extended by way of analogy also to previously morphologically unmarked verbs.

1 INTRODUCTION

The present discussion focuses on the analysis of the morpho-syntax of *vP* in Archaic Chinese and its diachronic development in Middle Chinese.¹ We propose that the reconstructed derivational morphology of Archaic Chinese was hosted in a split VP (adopting the structure proposed in [Ramchand 2008](#)),

¹ In the dating of Chinese we more or less follow [Peyraube \(1996\)](#) with a slight modification of the post LAC period: Pre-Archaic Chinese: language of the oracle bone inscriptions (OBI) (14th–11th c. BCE), Early Archaic Chinese (EAC) (10th–6th c. BCE), Late Archaic Chinese (LAC) (5th–3rd c. BCE) (the period of Classical Chinese), Early Middle Chinese (EMC) (transition period) (2nd c. BCE–2nd CE), Middle Chinese (MC) (3rd–6th c. CE), Late Middle Chinese (7th–mid-13th c.), Pre-Modern (mid 13th–14th c.) (transition period). The EMC and LMC periods referred to here are based on syntactic changes and not on phonological changes; thus they differ from the EMC and LMC periods in [Pulleyblank \(1991\)](#).

and that its loss was one of the triggers for a change of Chinese from a more synthetic to an analytic language.

Typological distinctions between more synthetic and more analytic languages have been an issue in linguistic research since the 19th century (e.g. Gabelentz 1891). Recently, Chinese has been included in this discussion and a distinction in terms of analyticity has been proposed between Modern and Old Chinese e.g. in Huang (2014), Huang & Roberts (2017), and Feng (2014). Relevant in the present discussion is the proposal that Modern Chinese has overt light verb constructions, indicating “a general property of ‘high analyticity’” (Huang & Roberts 2017), where Old Chinese lacks light verbs (see e.g. Feng 2014) and resorts to denominalized unergative intransitives, similar to English. Huang & Roberts (2017) provide the following cases: *da yu* ‘do fish’, English ‘to fish’, *da dianhua* ‘do phone’, English ‘to phone’ etc. The Old Chinese equivalent of *da yu* lacking the light verb *da* can be seen in example (1).

- (1) 譬之若 [_{vP} 漁深淵], 其 [_{vP} 得魚] 也大,
Pì zhī ruò yú shēn yuān qí dé yú yě dà
 Compare OBJ be.like to.fish deep swirl GEN get fish NOM big
 ‘It is like fishing in a deep swirl, the fish one catches will be big.’
 (*Lüshi chunqiu* 8 • 4 • 2 • 4)

Feng (2014) proposes a covert generic light verb for Old Chinese INVOLVE/DO in order to account for the differences between Old and Modern Mandarin as in the examples (2a,b). These structures start to cease to be productive in Middle Chinese and are replaced by more analytic structures involving an overt causative verb as in (2c); the pronominal object in the example is covert (from Wei 2000: 833). Disregarding the cases of reconstructed morphology, Archaic Chinese mostly has labile causative verbs, similar to English, for which the context decides whether they are used causatively or not (Basciano 2010: 78); examples for English synthetic causatives are in (2a,e).

- (2) (a) To thin the gravy ← To CAUSE the gravy thin (Feng 2014: 4)
 (b) 登泰山而小天下 (Mencius, LAC) (cf. Feng 2014: 5²)
dēng Tàishān ér xiǎo tiānxià
 mount Taishan CON small world
 ‘When he mounted Taishan, he considered the world to be small.’

2 The translation in Feng (2014) has been amended to the context.

- (c) ... 亦不令大，亦不使小，
(*Taisho* 221, 9, MC, 3rd c. CE, cf. [Wei 2000](#): 833)
... *yì* *bù* *líng* *dà* *yì* *bù* *shǐ* *xiǎo*
... also NEG cause big also NEG cause small
'... don't make it big, don't make it small.'
- (d) The window broke.
- (e) I broke the window. (cf. [Basciano 2010](#): 78)

Most studies on diachronic Chinese linguistics refer to the loss of the reconstructed former morphology of Chinese as a possible trigger for changes in the grammatical system of the language, but detailed discussions on this development are almost non-existent. In recent years, several studies attempted to provide analyses of the lexical semantics of words for which affixes had been reconstructed in order to figure out the original functions of the affixes. Particularly [Jin \(2006\)](#) and [Wang \(2014\)](#) started to distinguish Archaic Chinese verbs systematically into causative and unaccusative, or transitive and intransitive, verbs. However, the verbs discussed by these scholars were not classified according to the syntactic diagnostics proposed in the literature on the syntax-lexical semantics interface of verbs (see [Levin & Rappaport Hovav 1995](#), [Alexiadou, Anagnostopoulou & Everaert 2004](#)); a connection between loss of morphology and analyticization of the language was also not discussed in these studies.

The following discussion will focus on this connection as a first preliminary step of a large scale project on Chinese morphosyntax. The change from a morphologically marked synthetic verb in AC to an analytic structure in MC is represented by the examples in (3). (3b) with the state verb *yuǎn* 'far, distant', and (3a) with the causative verb 'cause to be distant, remove' show contrasting tones. The tonal differences developed from two different suffixes in Archaic Chinese: the suffix *-ʔ (OCM *wanʔ)³ → *yuǎn* 'far, distant'), and the suffix *-s (OCM *wans) → *yuàn* 'cause to be distant, remove'), which is analyzed as a causative suffix in [Jin \(2006: 405\)](#), i.e., as deriving a transitive verb from an adjective. The employment of state verbs (adjectives), and even nouns, as causatives could have morphological marking in AC, but did not require it. These synthetic causative constructions basically ceased to exist in Modern Chinese; their productivity already decreased in Middle Chinese and they were gradually replaced, for instance, by structures with an overt causative verb ([Wei 2000](#): 833) as in example (3c).

³ Unmarked reconstructions are taken from [Baxter & Sagart \(2014\)](#); OCM refers to Minimal Old Chinese in [Schuessler \(2007\)](#).

- (3) (a) 遠之則怨 (Analects, LAC)
 yuàn (OCM: *wans) zhī zé yuàn
 cause.distant OBJ then angry
 ‘If one keeps them at a distance, then they become angry.’
- (b) 明德遠矣 (Zuozhuan, LAC)
 míng dé yuǎn (OCM: *wan?) yǐ
 bright virtue distant SFP
 ‘his brilliant virtue is far reaching.’
- (c) 當 [使遠是因緣] (Daoxing borejing, MC)
 dāng shǐ yuǎn (MC: hjwonX) shì yīnyuán
 should cause distant this cause
 ‘... you should remove these causes, ...’

Other more analytic structures in EMC involve disyllabification, in which different parts of the lexical semantics of a former synthetic causative verb are made explicit (Wang 2013: 390f, Hu 2016). The semantic relations between the two roots can be very complex, and not all of them make a *cause*, *process*, or *result* event explicit (Basciano 2010: 35f, and references therein).⁴ Many of them involve some kind of temporal sequence, though (Hong 2004, cf. Basciano 2010: 35f). They emerge at the same time as other processes of analyticization, supposedly also triggered at least partly by loss of the former morphology.

Besides causativity, resultativity could be marked morphologically by a suffix *-s as in example (4). The verb *chí/zhì* ‘put in order, govern/well governed, in good order’ (Pulleyblank 1991) shows tonal alternations between a transitive/causative (4a) and intransitive/unaccusative variant (4b) (see also ex. (5)). (4c) displays a new structure expressing resultative in Middle Chinese, which we propose to have emerged when the former morphology had become opaque to the language learner. Resultatives as (4d) in Modern Mandarin (see e.g. Basciano 2010), and their counterparts in English (e.g. discussed in Levin & Rappaport Hovav 1995, Ramchand 2008), do not exist in Archaic Chinese and are an innovation in EMC. In (4d) from Modern Mandarin, resultativity is expressed by a phase complement and by the marker of perfectivity *le* 了 (Sybesma 1999); the structure is analyzed as a resultative small clause.

⁴ Basciano (2010) provides a valuable discussion within the First Phase Syntax framework (Ramchand 2008) of verbal compounds in Modern Mandarin, including a brief introduction into historical morphology. In contrast to our focus, which is on resultative marking, she mainly focuses on causativity in Modern Mandarin in her thesis.

- (4) (a) 政以治民, (Zuozhuan, Yin 11, LAC)
*Zhèng yǐ chí (*C.lǚ) mǐn*
 Government yi regulate people,
 ‘The government is necessary in order to regulate the people;’
- (b) 於是宋治 (Zuozhuan, Xi 9, LAC)
*yúshì Sòng zhì (*lǚ-s)*
 thereupon Song ordered
 ‘... and thereupon Song was well ordered.’
- (c) 如是治已, 而梵德王, 睡眠不覺。 (Taisho 190, 54, MC, 6th c.⁵)
Rúshì zhì (EMC:dri^H) yǐ ér fàndé wáng
 Such ordered yi and brahma-virtue king
shuìmián bù jué
 sleep NEG wake.up
 ‘After everything was ordered like this, the brahma king went to sleep and didn’t wake up.’
- (d) 張三擦乾了玻璃。 (Sybesma 1999: 69)
Zhāngsān cā-gān-le bōli.
 Zhang San wipe-dry-LE glass
 ‘Zhang San has wiped the glass dry.’

The present discussion focusses on the resultative reading of the **-s* suffix, and we propose that its basic function was to overtly realize a *res* head in the sense of Ramchand (2008) with both unaccusative/intransitive and causative/transitive verbs. This does not mean that we exclude the possibility that the **-s* suffix had other functions, e.g. causative functions, which is one of the functions proposed in the literature (e.g. Jin 2006) for it (see ex. (3)). In addition to a causative suffix **-s*, a causative prefix **s-* has been reconstructed for Archaic Chinese (e.g. Jin 2006, Mei 2012, 2015, Sagart & Baxter 2012). According to the linearization of heads within *vP* in Chinese with *cause/init* in the highest position, we would expect a causative morpheme rather to be realized as a prefix than as a suffix. But this is subject to further research.

Our proposal unifies the two major functions – valency increasing and valency decreasing – reconstructed for the suffix in the literature so far; these functions are briefly introduced in section 2. Ramchand’s diagnostics (2008) for the determination of verbs with a *res* head support our analysis. Our pro-

⁵ EMC refers to the pronunciation of the sixth-seventh centuries CE, which is labelled Early Middle Chinese in Pulleyblank’s (1991) chronology. The *-s* suffix had been lost entirely at this time; its micro-melody was retained in the *qusheng* reading of the word. See also example (4c). EMC readings are conventionally not considered as reconstructions, therefore they are not marked by *.

posal resembles McFadden's (2015) analysis of the functions of the Old English prefix *ge-*. For the Old English prefix, hypotheses with respect to its functions have been similar to those assumed for the Old Chinese suffix **-s*. In Early Middle Chinese multiple structures emerge which start to replace the former morphology in a complex *vP*. We propose that the loss of the former morphology triggered the emergence of disyllabic verbs, making either the process or the result part visible overtly. Additionally, it triggered the emergence of two resultative constructions. One of the new resultative constructions is the source structure of the Modern Mandarin perfective marker *le* 了 (ex. (4c,d)), the second concerns the postverbal resultative and potential marker *dé* 得. We propose that as long as the verbal morphology was still transparent, resultative affixes sufficed for the interpretation of an event as being achieved. When this morphology became opaque for the language learner, probably around the end of the LAC period, new structures emerged to replace the old morphology. These structures were extended by way of analogy also to previously morphologically unmarked verbs.

The paper is organized as follows: section 2 provides an introduction to the historical morphophonology and the different functions of the reconstructed **-s* suffix in Archaic Chinese; section 3 discusses different kinds of verbs which were reconstructed with the **-s* suffix; section 4 briefly introduces the emergence of new structures in Early Middle Chinese, and section 5 concludes the paper.

2 THE FUNCTIONS OF THE RECONSTRUCTED **-s* SUFFIX OF ARCHAIC CHINESE

2.1 Overview of the different functions of the suffix **-s*

Due to the writing system of Chinese, which only provides limited information on the actual pronunciation of the Chinese characters, phonological studies have been the core of indigenous philological studies in China since the Han period (202 BCE–9 CE, 25–220 CE). At this time, commentators on Classical Chinese texts started – possibly under the influence of Indian philology – to represent the pronunciation of a character with the help of two separate characters, one representing the initial, and a second representing the rime of the word written by the respective character. This is the so-called *fanqie* 反切 system, which was the basis for the systematic collection of characters with their pronunciation in rime dictionaries, the analysis of which was further refined by an intricate system of rime tables. The examples in (5) show the *fanqie* and their EMC transcriptions (Pulleyblank 1991) for the verb *chí/zhì* 'govern/well governed' in (4). The first character always represents the ini-

tial of the syllable,⁶ and the second character represents the rest of the Middle Chinese syllable including the tone; the *qusheng* is marked by [h]. The word in brackets refers to the *fanqie* system, meaning ‘cut’. The actual meaning of the words written by the *fanqie* characters is irrelevant in this system.

- (5) (a) 治: 直基切
 MM chí: **zhí jī** (qiē)
 EMC dri: **dr(ik k)i** (ts^het)
- (b) 治: 直吏切 (cf. Jin 2006: 322)
 MM zhì: **zhí lì** (qiē)
 EMC dri^h **dr(ik l)i^h** (ts^het)

The phonology of Archaic Chinese has been reconstructed to a great extent on the basis of this system, on cross-linguistic comparison with other Tibeto-Burman languages (Hill 2019 and references therein), on transcriptions of Buddhist terminology, and on evidence from Modern Chinese dialects. EMC in historical phonology following Pulleyblank (1991) refers to the period around the beginning of the 7th century, when the *Qieyun*, the first extant Chinese rime dictionary, had been compiled (601 CE).⁷ It consists of five volumes: two volumes are devoted to *pingsheng* (level tone, tone A) words, and one volume each is devoted to the *shangsheng* (rising tone, B), *qusheng* (falling tone, C), and *rusheng* (entering tone, i.e. stop finals, D) words. Early Middle Chinese in Pulleyblank (1991) does not correspond to the EMC period discussed in this paper, which is established according to syntactic changes. The latter already starts with the end of the Late Archaic period when the loss of transparency of the former morphological system caused multiple changes in the grammar of the language. Phonological changes and the loss of affixation also generated the tonal system of Chinese probably starting during the Han period (206 BCE–220 CE); first rime dictionaries of the same organization as the *Qieyun* probably appeared in the 3rd–4th centuries (Baxter 1992) CE; these are no longer extant. At the beginning of the 7th c. many of the source structures of Modern Chinese grammar were already well established.

Two different features have been proposed as triggers for tonogenesis in Chinese: 1) the loss of the suffixes *-ʔ, and *-s, which caused a distinction in contour tones, resulting in the rising (*shangsheng*) and the falling (*qusheng*)

⁶ The initial consonant clusters of Archaic Chinese were lost at this time.

⁷ The *Qieyun* had been lost until the beginning of the 20th century when manuscript versions and fragments of it had been found on the Silk Road in Dunhuang and in Turfan (Takata 2004). But its content and structure were known from its reedition in the *Guangyun* from the beginning of the 11th century, which is usually the source of the *fanqie* cited in the literature.

tones, respectively, and 2) a register distinction caused by a voicing alternation in the initial consonant. Although the voicing contrast has – with some exceptions – almost entirely disappeared from Modern Sinitic languages, its reflexes can still be observed to different degrees in a division into high and low register tones in Modern Sinitic and/or in differences in the initial consonant. The functions attributed to the voicing contrast are more controversial than the functions attributed particularly to the *-s suffix.⁸ Two contrasting proposals have been made with respect to the voicing alternation (Karlsgren 1933, Mei 2012, 2015, Sagart & Baxter 2012, etc.): a) it was caused by a former sonorant nasal prefix (Pulleyblank 1973, Sagart & Baxter 2012), or b) it was caused by the causative prefix *-s- (Mei 2012, 2015).⁹ This kind of derivation is much less frequent than the one by tone change caused by the loss of suffixes. Mei’s (2012) reconstructions have been comprehensively discussed and refuted on the basis of historical and dialect evidence in Sagart & Baxter (2012).¹⁰ The alternation of voiced-voiceless initials had been connected to different verbal functions ‘intransitive/passive – transitive’ already in the *Jingdian shiwen* by Lu Deming (550–630); this book is a compilation of commentaries on the pronunciation of words in the Chinese Classics. Examples of the different reconstructions are in table 1.

Word	AC: Mei/B&S	MC	MM	Meaning
敗	*brads/N-p ^r rat-s	bwai [baejH]	bài	ruined/defeated
	*s-brads/p ^r rat-s	pwai [paejH]	bài	to ruin, to defeat
別	*brjat/N-pret	bjat [bjət]	bié	to be different/leave
別	*s-brjat/pret	pjat [pjət]	bié	‘lift up’

Table 1 Voicing alternations in Mei (2012), Sagart & Baxter (2012) (from Sagart & Baxter 2012: 45)

Examples in which the prefix *-s- clearly has transitivity function according to Sagart & Baxter (2012) are in table 2. The first row presents the prefixed form, the second and the third rows present roots that the prefixed form may be related to.

⁸ Although the voicing alternation has also been related to transitive-unaccusative, imperfective-perfective, and transitive-passive meanings (most recently Xing & Schuessler 2020), its discussion will be postponed to another paper.

⁹ Sagart & Baxter (2012) provide a good overview on the present discussion. We follow their reconstruction of the prefix *-s- here.

¹⁰ Arguments against Mei (2012) have also been provided in Jin (2006: 52f, 109), briefly discussed in Meisterernst (2019), and Xing & Schuessler (2020).

Word	AC	MC	MM	Meaning
升	*s-təŋ	syŋg	shēng	'present to (a superior)'
登	*tʰəŋ	tong	dēng	'ascend'
拯	*təŋʔ	tsyŋgX	zhěng	'lift up'

Table 2 Prefix *s- (from Sagart & Baxter 2012: 45)

For the present study, we confine ourselves to the suffix *-s (Haudricourt 1954, Downer 1959, Unger 1983, Sagart 1999, Jin 2006, etc.), i.e., to words in *qusheng* reading in Middle Chinese. In the literature, the suffix is discussed under the label 'Derivation by Tone Change', because of its manifestation in tonal alternations of one lexical root. The tone change is characterized by an alternating reading of lexical roots in any of the three tones of Middle Chinese A, B, and D with a reading in the falling tone (*qusheng*, C). The *qusheng* has developed from an *-s coda, which changed into -h and further into the *qusheng* (Haudricourt 1954, Sagart 1999). The process probably took place in different stages during the Archaic and in the EMC periods (beginning with the 2nd c. BCE). Double readings and minimal pairs involving a cognate in the *qusheng* are relatively frequent. In Early Middle Chinese, this system becomes opaque and is gradually being replaced by more analytic structures.¹¹ The different functions of the *qusheng* derivations have been first systematically listed in Downer (1959), classified into those that (a) derive nouns from verbs, (b) derive verbs from nouns, (c) derive causatives, (d) derive effectives, (e) restrict the meaning of a word, (f) derive passives or neutrals, (g) derive adverbials, (h) derive basic forms for lexical composition. A few examples (taken and adapted from Jacques 2016: 206) for some of the derivations proposed in Downer (1959) are shown in table 3. The table shows that the different derivations can be written by the same or by different but related characters.¹²

Most of the different functions attributed to the suffix *-s in Downer (1959) have been reduced to two basic functions in recent literature (particularly Jin 2006, Schuessler 2007, Xing & Schuessler 2020):

¹¹ Sagart (1999: 131) assumes that the entire tonal category C developed from tonal alternations with the other categories.

¹² Since there was no reconstruction for the *qusheng* in Baxter & Sagart (2014), Schuessler's reconstruction has been chosen.

Word	Function	AC	MC	MM	Meaning
高/高	Nominalization	OCM *kâu/ kâu ^h	kaw/ kaw ^H	gāo/ gào	high/ height
家/嫁	Verbalization	*kŋra/ *kŋra-s	kae/ kae ^H	jiā/ jià	family/ marry
買/賣	Causativization	*mŋrajʔ/ *mŋrajʔ-s	mea ^X / mea ^H	mǎi/ mài	buy/ sell

Table 3 Suffix *-s

a) a valency decreasing function, connected to passive (Schuessler 2007, Xing & Schuessler 2020), perfective (Jin 2006), and resultative (telicity) values (Meisterernst 2019);

b) a valency increasing (causative) function.

The two derivational processes of voicing alternation and derivation by tone change are frequently connected to distinctions within the grammatical, i.e. the perfective and the imperfective aspect, a distinction between transitive and intransitive verbs and/or causative and unaccusative verbs (e.g. Jin 2006, Mei 1988, 2015, Wang 2014). Contrastingly, Meisterernst (2016) proposes that the reconstructed morphology concerns the lexical aspect, aktionsart, rather than the grammatical aspect. Aktionsart morphology adds semantic features to the verb such as ingressivity, terminativity, iterativity, etc. (Kiefer 2010: 145). This fits well with the meanings proposed for a number of derivational affixes reconstructed e.g. in Sagart (1999). Of the two different derivational processes, only the derivation by tone change, i.e., by the suffix *-s (e.g. Unger 1983, Huang 1992, Jin 2006, Wang 2014) will be included in this study. In the following two sections we briefly discuss the two basic functions proposed for the suffix *-s in the literature.

2.2 The valency decreasing and the valency increasing suffix *-s

2.2.1 The valency decreasing suffix *-s indicating result

A few examples (Meisterernst 2019, Jacques 2016) of verbs with decreased valency and with cognate pairs in which the unaccusative, resultative variant is marked morphologically by the suffix *-s, are shown in table 4. The first verb already appeared in ex. (4); for the third verb in this table, *sàn* 散, two

Word	AC: tone A,B/C	MC	MM	Meaning
治	*lrə/*lrə-s	dri/dri ^H	chí/zhì	order/be ordered
過	*k ^w ɣaj/*k ^w ɣaj-s	kwa/kwa ^H	guō/guò	pass/passed, overstepped (mistake)
散	OCM*sânʔ/*sâns	san ^X /san ^H	sǎn/sàn	scatter/be scattered

Table 4 The valency decreasing *-s suffix

different derivations have been proposed. Jacques (2016: 207) and Schuessler (2007: 449) analyze the *qusheng* variant as the derived unaccusative variant, whereas Baxter & Sagart (2014) assume that the *qusheng* reading is the derived causative reading. According to them, the suffix has valency increasing functions.¹³

The valency decreasing function is one of the two basic functions to which the suffix *-s has been reduced in recent literature (Jin 2006, Schuessler 2007, Meisterernst 2015a, 2019). Jin (2006) assumes that the suffix is a marker of perfective aspect (see also Unger 1983). He claims that deverbal derivations are frequently subsumable under a change from the imperfective to the perfective aspect (Jin 2006). The latter form, referring to a resultant state, was subsequently employed as an adjective or noun, resulting in deverbal adjectives and nominals (Jin 2006: 323f); sometimes this process is reflected by different graphic variants. The result reading can be seen in example (4b) repeated as (6) here.

- (6) 於是宋治。 (Zuozhuan, Xi 9, LAC)
 yúshì Sòng zhì (*lrə-s)
 thereupon Song well-ordered
 ‘... and thereupon Song was well ordered.’

The Chinese derivational process has been compared to Tibetan and other Tibeto-Burman languages, and the suffix (OC *-s, *-h) has been proposed to be related to the Tibeto-Burman suffix -s (Unger 1983, Schuessler 2007: 42,

¹³ We include this example following Jacques’s (2016: 207) and Schuessler’s (2007: 449) analyses, because it reflects the controversial analyses proposed in the literature. None of these authors applied syntactic diagnostics as, e.g., proposed in Levin & Rappaport Hovav (1995) in order to argue for a preference for causativizing as opposed to anticausativizing morphology (Ramchand 2008, referring to Levin & Rappaport Hovav 1995) in Chinese. These are issues that still have to be investigated more comprehensively for LAC.

Huang 1992, Jin 2006, Jacques 2016), still to a certain extent productive in the earliest Tibetan documents from Dunhuang dating from the 6th c. CE (Saxena 1997: 288). This was the most productive derivational affix in Classical Tibetan and part of the complex verbal morphology of Tibetan; it has obvious aspectual functions. When it disappeared, its functions were replaced by more analytic structures (Saxena 1997). The suffix *-s* appears in the past/perfective, and in the imperative stems; the latter include modal and future-projecting meanings (Zeisler 2004: 260f).¹⁴ Example (7a) presents three verbs which are marked in all four stems; example (7b) shows a verb in the perfective stem in context.^{15,16}

		Imp (Present)	Perf (Past)	Future	Imperative	
(7)	(a)	<i>make</i>	cha	bcas	bca'	chos (Saxena 1997: 280)
		<i>gather</i>	nthu	btus	btu	thus (Beyer 1992: 161)
		<i>chop</i>	nthub	btubs	btu	thubs (Beyer 1992: 252)
	(b)	<i>nags-la</i>	<i>rgyal-po-s</i>	<i>sin-</i>	<i>btubs</i>	
		forest-LOC	king-agent[ERG]	wood-patient	chop-PERF/PAST	
		'The king chopped wood in the forest.'				(Beyer 1992: 252)

Tibetan verbs show a clear distinction between transitive and intransitive throughout their history; e.g., intransitive verbs do not have future and imperative stems (Beyer 1992: 163). Transitive verbs are more complex and can be distinguished into four different classes according to the prefixes and suffixes of their respective stems as in table 5 from Beyer (1992). Beyer retains the traditional Tibetan grammatical tradition in distinguishing between present and past tense instead of imperfective and perfective, knowing that it misrepresents the actual function of the different categories.

Zeisler (2004: 269) points out that the situation presented in the table is an idealization which covers only part of the Tibetan verbs; many verbs have only one or two stem forms, some have three. Zeisler also points out that the Tibetan verb is more like an adjective, participle, or action noun (2004: 270,

14 Zeisler in her seminal work comprehensively discusses the complex functions of the different stem forms of Tibetan verbs. Although she mostly refers to Modern Tibetan, she also includes discussion on the Old Tibetan verb morphology. She concedes that not all the puzzles of the morphosyntax of the Tibetan verb have been solved satisfactorily.

15 These forms were labelled *present*, *past*, *future*, *imperative* by the traditional Tibetan grammarians (Beyer 1992: 160); the resulting verb forms are called verbal *stems* from which the verbal root can be derived (Beyer 1992: 162).

16 Examples in the linguistic literature on Tibetan are mostly presented as part of the running text and are sometimes not transcribed and only occasionally glossed. The example and its translation are taken from Beyer, as is the classification of the thematic roles. The agent of a transitive control verb is usually marked by the ergative marker; the patient remains unmarked (Zeisler 2004: 253).

	PRESENT	PAST	FUTURE	IMPERATIVE
Class 1	N_____	b_____s	b_____	_____s
Class 2	N_____	b_____s	G_____	_____s
Class 3	G_____	b_____s	b_____	_____s
Class 4	G_____	b_____s	G_____	_____s

Table 5 The Old Tibetan transitive verb paradigm (Beyer 1992: 164)

and references therein); an adjectival stem can appear in several verbal forms. She gives the adjective stem *che* as an example, which can appear in “*che-n’po* ‘great, big’, *che’ba* ‘(be) greater’, and *che* || *ches* ‘to be great, become great, grow’” (idem). We will see in the following that adjectival verbs display similar functions in Archaic Chinese.

Jacques (2016) connects some functions of the *-s suffix in Archaic Chinese to a suffix *-si* in Khaling, a Tibeto-Burman language, which can have functions related to passives, or middles. Remnants of this *-si* suffix might also be attested in Tibetan according to Hill (2014, cf. Jacques 2016: 211) and others. This can be seen in a few verbs which appear in triplet forms A, B, and C, and which are distinguished by their initial and by the presence of an *-s* suffix. A is intransitive, B is transitive, and C is intransitive again. Jacques proposes that the type C verbs could be remnants of *-si* suffixed middle verbs.¹⁷

- (8) (a) A: *ngag* ‘be stopped, break off’
 B: *ngegs, bkag* ‘hinder, prohibit’
 C: *k^hegs* ‘be hindered, prohibited’
- (b) A: *gan* ‘fill intr.’
 B: *ngeŋs, bkaŋ* ‘fill tr.’
 C: *k^heŋs* ‘be full’
- (c) A: *gab* ‘hide intr.’
 B: *ngebs, bkab* ‘cover tr.’
 C: *k^hebs* ‘be covered over’ (cf. Jacques 2016: 211)

Although not all the examples presented in Jacques are of exactly the same kind, the point relevant here is that the suffixed C verbs in the examples in (8)

¹⁷ Jacques is mostly interested in the differences in prefixation, thus we are omitting parts of his discussion here.

all refer to a result state. They can be used as result state adjectival verbs, similar to what will be proposed below for Old Chinese particularly in examples such as (17b).

2.2.2 The suffix *-s indicating an increase of valency

Verbs showing an increase of valency can appear in an alternation with verbs in the *shangsheng* (Jin 2006, Schuessler 2007, Xing & Schuessler 2020) (see also example 3). The *shangsheng* reading has been proposed to result from a former *-ʔ suffix; the increase of valency usually involves a change from transitive to ditransitive verbs. The alternation has been described as inward and outward directional (Mei 2012). Jin (2006) classifies the valency increasing *-s suffix as a ‘giving’ derivation (2006: 360f.); the verbs of ‘giving’ are derived from the verbs of ‘receiving’ by the suffix *-s. It is one of the major derivational classes of the *-s suffix. It applies to many verbs with an outward reading such as verbs of giving, helping etc. Jacques (2016: 206) discusses the verb in (9) as a causative (see also table 4), Downer’s category (c). A similar derivation has been proposed for the verb in (10).

- (9) (a) 買 *mǎi* *mrê- tr. ‘to buy’
 (b) 賣 *mài* *mrê-s tr. (‘to let buy’:) ‘to sell’
- (10) (a) 視 *shì* *gi- tr. ‘to look at’
 (b) 示/視 *shì* *gi-s tr. (‘to let someone look at sth.’:) ‘to show’

The proposal that all Middle Chinese *qusheng* words result from a former derivational suffix *-s (e.g. Sagart 1999) has been challenged in Jacques (2016) who provides a brief overview of different functions of *-s in Chinese in comparison with Tibetan and other Tibeto-Burman languages (for the latter see also Hill 2014, 2019). Based on a comparison with the Tibetan lexicon, Jacques (2016: 208) claims that the figures for the reconstructed *-s suffix in Old Chinese are too high and that a certain amount of the data should be attributed to a sound law *-t → *-s/C_#. Jacques’ reconstruction has to be investigated further, but it does not invalidate our analysis.

This brief overview shows that the precise functions of this suffix in Chinese are still under debate and systematic research on the morphosyntax of the respective verbs remains the exception. Previous research mostly concentrated on the historical morphology of Chinese, deriving the respective functions of the derivational morphemes predominantly from the (lexical) semantics of the verbs. The present study will follow a new approach as the

first step of a large scale project, joining historical morphophonology with recent cross-linguistic research on diachronic syntax. The validity of the morphophonological reconstructions will be checked systematically on the basis of syntactic tests pre-defined for the classification of the intrinsic aspectual structure of verbs cross-linguistically. This is an entirely innovative approach in Chinese historical linguistics.

The question whether and to what extent Archaic Chinese had morphological alternations is a debated issue; proposals range from assuming a rich system of affixation (e.g. [Sagart 1999](#)) to those assuming that Archaic Chinese lacks morphological alternations (e.g. [Zádrapa 2011](#), cf. [Jacques 2022](#)). Considering the substantial syntactic changes Chinese underwent at the end of the LAC and in the EMC periods, together with the concurrent development of the tonal system due to the loss of affixation, it seems reasonable to assume that at least some of the syntactic changes were triggered by opacity and/or loss of former morphology. Syntactic change due to loss of morphology is a well attested process cross-linguistically (e.g. [Roberts & Roussou 2003](#), [McFadden 2015](#) for Indo-European languages), and we will demonstrate that this process can also be assumed for Chinese. [Roberts & Roussou \(2003: 23\)](#) claim that language change happens when the trigger for setting a parameter is somehow obscure. In language change as in learnability “there has to be some mechanism that allows the learner to set or reset parameters on the basis of the trigger experience”. [Roberts & Roussou’s](#) approach to grammaticalization involves structural simplification, i.e. a simplification from move to merge. In the process of grammaticalization, an item changes from a lexical category (e.g. N or V) to a functional head. We propose that this process is involved in the development of new resultative structures at the end of the LAC period. Although we are not going into the details of this development in this paper, we assume that some of the resultative constructions involve the grammaticalization from lexical into functional items; e.g., this is the case for the source structures of the Modern Mandarin aspectual suffixes ([Aldridge & Meisterernst 2018](#)). In the disyllabification process, on the other hand, different parts of the event structure of a verb (*init*, *proc*, and *res*) can be expressed by a lexical root which is merged directly in the respective position; direct merge is the most economical option ([Roberts & Roussou 2003: 23](#)). The verb in Chinese never moved out of the lexical domain; the common assumption for LAC is that the verb moved up to little *v*, unless this position was blocked e.g., by an applicative head ([Aldridge 2012](#) and references therein). Additionally, complex event structures such as accomplishments have been proposed to be realized via incorporation in the *v*P phase ([Roberts & Holmberg 2010](#):

43).¹⁸

In the approach taken in this article, we want to provide evidence from the diachronic perspective for the reconstruction of the suffix **-s* as a *res*-head in at least part of its instantiations. This can serve as basis for subsequent work on the function of the reconstructed affixes in Chinese. We assume that the syntactic patterns found in the synthetic examples in LAC are cognate to the syntactic patterns in EMC and in MM and thus allow a reconstruction of the original function of the verbal morphology. Harris and Campbell (cf. Walkden 2013: 10) list six criteria which have to be met in order to establish a syntactic cognacy relation.¹⁹ These criteria are met in the diachronic development from synthetic to analytic in the Chinese verbal system to a great extent. In the following comparison of two parallel examples from LAC and EMC, the argument structures of the synthetic form in (11 a) and the analytic construction in (11 b) are identical, tense/aspect patterns and meaning are the same, and one of the lexical roots in (11 b) is identical with (11 a); additionally, this kind of analyticization process is productive in particular syntactic environments. In this example, a verbal root referring to the *proc* part ‘go, walk’²⁰ is merged directly in its respective position preceding the resultative root *zhi* ‘arrive’. This is discussed in a little more detail in section 4.

¹⁸ Word order in LAC is very strictly SVO, and all functional material, i.e. mood/modal/tense/aspect markers, consistently precedes the *vP* domain. The same basic word order still exists in MM as can be seen in (i) from Basciano (2010: 367); however, word order is more flexible than in LAC.

(i) 我騎累了哪匹馬
Wǒ qílèi le nà pǐ mǎ
 I ride-tired ASP that CL horse
 ‘I rode that horse tired.’

The strict word order constraints of LAC make it difficult to apply syntactic tests in order to provide evidence for movement (see Meisterernst 2020a).

¹⁹ These criteria are: (i) the verbs, with which the case marking patterns are associated, are entirely cognate; (ii) the tense, aspect and verb class are the same in each pair, (iii) the individual verbal morphemes are cognate, (iv) the meaning is the same, (v) cases occur regularly in the context of other cases and in the context of particular verb morphology, (vi) these examples are representative of all regular verbs. (Harris & Campbell 1995: 349, cf. Walkden 2013: 10).

²⁰ One of the reviewers claimed that manner verbs are frequently part of the disyllabification process. A verb such as ‘go, walk’ does refer to a process, but semantically it also refers to the manner of motion which leads to an arrival. See also Levin & Rappaport Hovav (1995: 182f) on verbs of manner of motion. In our view, there is no contradiction in labelling lexical roots expressing a manner of motion as referring to *proc* in the system used here.

- (11) (a) 三戰三北，乃至于吳。 (Guoyu, Wuyu, LAC)
 Sān zhàn sān bèi nǎi zhì (*ti[t]-s) yú Wú
 Three fight three flight then arrive PREP Wu
 ‘After three fights and three flights they arrived at Wu.’
- (b) 諸比丘受佛語已，即往至屋所，
 Zhū bīqiū shòu fó yǔ yǐ jí wǎngzhì
 PL monk receive Buddha speech 已 then go.arrive
 wū suǒ
 house place,
 ‘and after the monks had listened to the speech of the Buddha,
 they arrived at the place of the house...’ (Taisho 1462, 8, MC)

2.3 The data

This brief study is meant to be the basis for a more comprehensive study of the morphosyntax of Archaic Chinese in which the attempt is made to provide evidence for the functions of the respective derivational morphemes by connecting them to the diachronic changes in *vP* in Chinese. The present preliminary study is based on the 956 words with *qusheng* reading listed in the *Glossar des Klassischen Chinesisch* (Unger 1989) (the entire wordlist includes 3500 entries), and on Unger’s unpublished Middle Chinese reconstructions.²¹ The following distribution can be observed in the *qusheng* words in this small corpus.

According to the corpus analysis conducted for this study, about 27.31% of the words in the LAC corpus of Unger have a *qusheng* reading in Middle Chinese, i.e. they have been reconstructed with *-s in Archaic Chinese according to the present state of research. In total 56.7% of the 956 *qusheng* words are glossed as verbs in Unger (1989); of these 44.46% are glossed as verbs only. A relatively high number of lexical items can function as verbs, as mostly resultative adjectives (and deadjectival verbs), and as resultative nouns (117 = 12.2%). Almost 80% of the ‘verbs only’ category allow or require telic/result readings; only 10% of the smaller category ‘verb/noun/adjective’ are atelic. This means that the overwhelming majority of verbs in the *qusheng* require or allow telic/result readings. Only a very small number of verbs seem to be atelic only.

²¹ Baxter & Sagart (2014) reconstruct about 23% of words in their wordlist with 4968 entries with an *-s suffix. This percentage is a little bit lower than in Unger’s wordlist. Based on a comparison with the Tibetan lexicon, Jacques (2016: 208) claims that the figures for Old Chinese are too high and that a certain amount of the data should be attributed to a sound law *-t → *-s/C_#. This is subject of further research and will not be discussed in this paper, but certainly has to be investigated in subsequent research.

	verb/adj/ noun	verb only		adjective only	noun only	function words/adv
total	117	425 (44.46%)		95	273	8
telic only	9	55				
telic/result	54	350 (82.35%)	result →atelic	26		38
telic/result?	6	6				
telic/atelic	34	1				
semelfactive?	2	13				
atelic	12			6		

Table 6 Distribution of *qusheng* words

The following examples show a noun, an adjective, and an adverb in the *qusheng* reading in Middle Chinese, resulting from the suffix *-s. In example (12), the *qusheng* noun *zhuàn* 傳 ‘transmission, tradition, commentary, biography’, is followed by an example with the cognate verb *chuán* 傳 ‘pass on, transmit’ which is in *pingsheng*. Mei (2012) argues that the nominal form is a perfective form of the verb. Jacques (2016) compares Tibetan and Chinese -s to a suffix -s in Rgyalrong with basically nominalizing functions (see also table 3).

- (12) (a) 是淺者之傳，陋者之說也， (Xunzi, *Zhenglun*, LAC)
 Shì qiǎn zhě zhī zhuàn (*N-tron-s) lòu zhě zhī
 This low REL GEN tradition poor REL GEN
 shuō yě
 speech SFP
 ‘This is the tradition of the low and the speech of the poor.’
- (b) 父子相傳， (Xunzi, *Rongru*, LAC)
 fù zǐ xiāng chuán (*m-tron)
 Father son each.other pass.on
 ‘Father and son pass on to each other.’

In example (13), we have two adjectives in predicative function.²² Predicative adjectives are syntactically and morphologically similar to verbs; they are

²² Basciano (2010) in her study on verbal compounding and causativity in Modern Mandarin labels these verbs deadjectival verbs.

regularly negated by the verbal negator *bù* 不. Adjectives can appear in the *qusheng*, as in (13 a) with the adjective and noun *lì* 利 ‘profit, profitable’.²³ They can also occur in causative constructions with an internal argument without any morphological marking as in (2 b), repeated here as (13 b). But a number of adjectives display tonal alternations; this has been shown in the example in (3) with the adjective *yuǎn* 遠 ‘distant’, which has a causative derivation *yuàn* ‘cause to be distant, remove’ and it can also be seen in (13c,d), with the adjective *hǎo* 好 ‘good’ in *shangsheng*, and its *qusheng* variant ‘love, like’.

- (13) (a) 穆叔以屬鄙為不利, (Zuozhuan, Xiang 5, LAC)
Mù shú yǐ zhǔ Zēng wéi bù lì (*C.ri[t]-s)
 Mu Shu with attach Zeng make NEG useful
 ‘Mu Shu thought it not useful to attach to Zeng.’
- (b) 登泰山而小天下 (Mencius, LAC) (cf. Feng 2014: 5)
dēng Tàishān ér xiǎo (*[s]ew?) *tiānxià*
 mount Taishan CON small world
 ‘When he mounted Taishan, he considered the world to be small.’
- (c) 有不好焉，不如辭之， (Zuozhuan, Zhao 13, LAC)
yǒu bù hǎo (*q^hŋu?) *yán bù rú cí zhī*
 there.is NEG good in.it NEG like decline 3OBJ
 ‘if there is anything that is not good in it, we should rather apologize’
- (d) 夷吾弱不好弄， (Zuozhuan, Xi 9, LAC)
Yíwú ruò bù hào (*q^hŋu?-s) *lòng*
 Yiwu young NEG like play
 ‘When Yiwu was young, he didn’t like to play, ...’

In example (14), we have an alternation between an adverb *gèng* 更 ‘more, even more, again’ in *qusheng*, and a verb *gēng* ‘change, replace’ in *pingsheng*. Jacques (2016) proposes that the suffix in these derivations might originally have had locative functions. These examples represent some of the morphological alternations possible in LAC.

²³ Whether the *-s suffix formerly had a special derivative function in examples like this is still subject to more research.

- (14) (a) 在此行也，晉不更舉矣， (Zuozhuan, Xiang 28, LAC)
 Zài cǐ xíng yě Jìn bù gèng (*kʃraŋ-s) jǔ yǐ
 Be.at this behavior SFP Jin NEG again rise SFP
 ‘Due to this behavior, Jin did not rise again.’
- (b) 吾曰，猶將更之， (Zuozhuan, Xiang 28, LAC)
 Wú yuē yóu jiāng gēng (*kʃraŋ) zhī
 1P say still FUT change 3OBJ
 ‘I said, we will still change it.’

The following section will discuss a small number of representative verbs in *qusheng*, with and without alternations with one of the other tones. In this very preliminary study we will propose that the basic function of the suffix *-s is the overt morphological realization of a *res* head, following Ramchand’s First Phase Syntax. We will show that this generally accounts not only for intransitive/unaccusative verbs, but also for a number of transitive/causative verbs, thus unifying the two proposed functions of increase and decrease of valency to the one function as a *res* head. Further study will be needed to account for the numerous problematic cases, but if we are able to support the present proposal by more empirical data, this would provide a more homogeneous account for the function of one of the most common affixes of Archaic Chinese.

During the period of the Classical Chinese literature (LAC) the suffix is not productive any more (Schuessler 2007), but its functions still seem to be transparent for the speaker of the time. The function of the suffix most likely started to become opaque at the end of the LAC period, at which time the language showed a considerable number of innovations which can be related directly to the loss of morphological marking within *vP*. Additionally, perfectivity and realization of an event is increasingly marked by aspectual adverbs (Meisterernst 2015a, Aldridge & Meisterernst 2018). Some of these innovations will be briefly discussed in section 4.

The analysis we propose here differs to a certain extent from Meisterernst (2016), who claimed that the *-s suffix is hosted in an Inner Aspect Phrase, marking telicity following Travis (2010). We will show in section 3 that Ramchand’s (2008) First Phase Syntax better accounts for the different eventualities which make up the event structure of the verb, whether they are realized overtly or covertly. In Archaic Chinese, these eventualities can, but do not have to, be realized overtly by affixation. In the process of Derivation by tone change (tables 3 and 4 and example 17), which is possibly still to a certain extent productive in LAC, event structure differences are relatively transparent. But Ramchand’s system also allows us to analyze the event structure of verbs, the affixes of which are not productive any more and only show reflexes of

the assumed former derivational system. Additionally, Ramchand's system accounts well for the disyllabification process of the verbal system, which was triggered by the loss of the derivational morphology and resulted in the tendency to realize two of the possible sub-evental heads overtly by lexical roots. Support for this analysis comes from Modern Mandarin. [Basciano \(2010\)](#) analyzes the internal structure of resultative constructions in MM as syntactic realizations within the First Phase, i.e., the lexical domain. In diachronic syntax, First Phase syntax has been used, e.g., for the analysis of the Old English prefix *ge-* as a *res*-head ([McFadden 2015](#)). The analyses proposed in the literature for OE *ge-* are similarly complex as for the Chinese suffix **-s* ([McFadden 2015: 2](#); [Meisterernst 2019](#)). In contrast to Modern German and Dutch, where the prefix *ge-* is still productive in deriving the perfect/passive participle, the exact function of the *ge*-prefix in Old English is difficult to determine, but verbs with the *ge*-prefix obviously interact with aspect and aktionsart, argument structure and (lexical) semantics of the verb. The Old English *ge*-prefix is attested on a present participle, in *to*-infinitives, in finite forms, in bare infinitives, in imperatives and in past participles. This shows that the prefix is not confined to contexts which seem to require a result reading. We take this as some cross-linguistic support for the analysis of suffixed verbs in Archaic Chinese as not only referring to result states, similar to result state participles in Germanic, but also as transitive verbs, which include a *res* head in their event structure. Similar to the Old English *ge*-prefix within the Germanic languages, the Chinese **-s* was also lost much earlier than the respective suffixes in other Tibeto-Burman languages such as Tibetan and Burman. The examples in (15) present two different instances of the *ge*-prefix in Old English. In (15a) it appears as a perfect/passive participle (PPP); in this function the cognate prefix in German is still productive. In (15b) the prefix appears on a finite past form, showing that it is not confined to the function as a perfect/passive participle.

- (15) (a) *ac hēo hæfde gecoren Crist hȳre to brȳdguman*
 But she had chosen Crist her to bridegroom
 '... but she had chosen Christ as her bridegroom.'
 (coalive,+ALS_[Eugenia]:349.401, cf. [McFadden 2015: 5](#))
- (b) *Sē geworhte ealle þing*
 He created all things
 'He created all things.'
 (coalive,+ALS_[Christmas]:66.51, cf. [McFadden 2015: 6](#))

The reasons for the loss in Old English are not clear according to [McFadden \(2015: 30\)](#) and he proposes "that lexical verbs increasingly came to be able

to realize the *res* head themselves, obviating the need for a separate realization by *ge-*." In PDE [Present-Day-English] verb roots can appear in Accomplishments and Achievements with a covert *res* head in Ramchand's system (idem). A similar situation, i.e. covert light verbs expressing different functions within *v*P, has been proposed in recent research on Chinese (e.g. Feng 2014, Huang & Roberts 2017), supporting the proposal that Chinese developed from a more synthetic to a more analytic language at the end of the LAC period. Although a possible loss of morphology in Chinese is conceded, in this branch of research the possibility of overt morphological marking of functions such as causativity and result in earlier stages of Chinese is not really discussed. The objective of our research is to attempt to fill this gap.

3 VERBAL MORPHOLOGY AND ITS FUNCTION IN ARCHAIC CHINESE

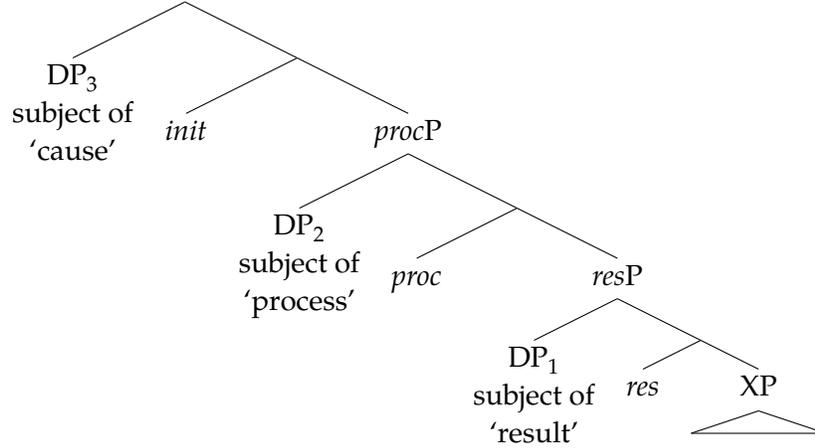
The following discussion focuses on the suffix **-s* reconstructed for Archaic Chinese and it proposes that it is a derivational morpheme indicating result.

3.1 *The function of the *-s suffix within Ramchand's First Phase Syntax*

In this section, we provide arguments for the overt marking of a *res* head in Archaic Chinese, based on the diagnostics proposed in Ramchand's (2008) First Phase Syntax. We briefly introduce Ramchand's system in this section. Ramchand (2008) distinguishes three different participant roles in her syntactic account of the telicity features of verbs, the realization of which determine the aspectual features of *v*P. These are: 1) the Initiator, which is the direct argument related to the causing subevent (when it exists); 2) the Undergoer, which is the direct argument related to the process subevent; and 3) the Resultee, which is the direct argument related to the result state (when it exists) (Ramchand 2008: 33). But not all potential arguments of predicates can be subsumed under this classification. This includes arguments which do not affect the aspectual interpretation of a dynamic event in the way proposed, e.g., the arguments of stative verbs. Additionally, PP arguments, which do not belong to the core arguments, have to be included in a typology of "the ingredients in the building up of the core event" (idem). In Ramchand's approach the grammatically relevant information comes from the interpretation of the syntactic structures the verbs participate in (Ramchand 2008: 38). This approach more explicitly accounts for the semantics of the respective event structures proposed than previous approaches (Ramchand 2008: 39). The resulting event structure syntax contains three important sub-evental components: 1) a **causing** subevent, 2) a **process denoting** subevent and 3) a **result state** subevent. Each of these subevents is represented as its own projection,

ordered in a hierarchical embedding relation (Ramchand 2008: 39).

(16) *init*P (causing projection)



According to Ramchand's definition, *init*P introduces the external argument in the outer causal projection, similar to *v* in e.g. Hale & Keyser (1993), Harley (1995), Kratzer (1996). The dynamic process is represented by *proc*P (for process), and the result is represented by *res*P. In this system, the category V is split into several projections, representing the maximal components which can contribute to it. Not all of the projections have to be present in the respective verb. Together with the representation of sub-evental complexity (verbal aktionsart according to Vendler 1967, and subsequent literature), Ramchand's system accounts for the respective core argument roles of the event, providing a specifier position for the 'subject' or 'theme' of each respective subevent. The complement position provides the content of the event; it is itself complex and contains 'another 'mini-predication', with its own specifier and complement' (Ramchand 2008: 40). Although this system shows similarities to traditional aktionsart systems and their definition of telicity features, not all traditionally telic verbs necessarily include a *res* head. Accomplishments in Ramchand's system – though they show both process and boundedness – are [init, proc]; they do not have to include a *res* head, because temporal boundedness can come 'from bounded paths in the complement position of the *proc* head, or can even arise from real-world knowledge ...' (Ramchand 2008: 77). In our discussion, we are particularly interested in those verbs which are liable to include a *res*-head. The following diagnostics are proposed in Ramchand (2008) for the determination of verbs with a *res*-head:

a) resultant state or location PPs: describing the final location or final result of the RESULTEE-UNDERGOER in a dynamic event (Ramchand 2008: 75).

b) Incompatibility with ‘for an hour’ in English (Ramchand 2008: 76). This constraint does not account for Chinese which allows durational adverbials with resultant states (Ernst 1987, Meisterernst 2015b), but it can still provide evidence for a result reading (see ex. (21)).

c) anchoring of the event structure to tense (Ramchand 2008: 77f): a single lexical item identifies both *proc* and *res*, the event expressed is punctual. The verb identifies both an initiational state and the result state. This means that all three subevents must be interpreted as overlapping; the verb carries all three features on one lexical item. The process portion is reduced to a single instantaneous change. Ramchand claims that punctual verbs, achievement verbs in Vendler (1967), or semelfactives in their basic semantics, i.e., not used as activities, have only one tense specification (2008: 78). Although Ramchand (2008: 40) assumes that *procP* is present in every dynamic verb, regardless of whether the process is extended with an indefinite number of transitions or limited to one single minimal transition, in punctual verbs, both the *proc* and the *res* eventuality overlap and collapse into one single point on the time line.

In the following we will present several representative verbs with *-s, providing some arguments for their analysis as verbs with a *res* head. Before discussing the different tests for the identification of a *res* head, we will provide a few typical examples of verbs with a *qusheng* reading, which might be liable for an analysis as *res* verbs in this section. The intuitively most likely *res* verbs in our corpus are simple resultatives in unaccusative constructions. Example (17) shows an example similar to (4) with the verb *níng/nìng* 凝 ‘consolidate/be consolidated’, which has alternating tones for the causative/transitive in (17a), and for the unaccusative/intransitive variant in (17b).²⁴ In the unaccusative/intransitive variant, a result is expressed.²⁵ According to Ramchand (2008: 44) both “the initiation eventuality and the result eventuality are states ... in the *res* position, the state introduced by that head is interpreted as being causally implicated by the process.”²⁶ Particularly in the transitive-

24 This verb is not recorded in Jin (2006) and Baxter & Sagart (2014).

25 The form *[ŋ](r)əŋ-s is not listed in Baxter & Sagart (2014), and has been assumed by us on the basis of the reconstructed *pingsheng* form.

26 Ramchand (2008) does not discuss target or result states expressed by participles in English, which subsequently can be employed as predicative and modificational adjectives due to their inherent syntactic and semantic constraints. However, these are comprehensively discussed in Ramchand (2018). Ramchand (2018: 84f) assumes syntactic decomposition even of verbs with target states in the Kratzerian sense, which allow modification by ‘still’ in German, into ProcP (activity portion) and ResP (caused final state), “on the basis of the linguistic tests, regardless of morphological make up.”

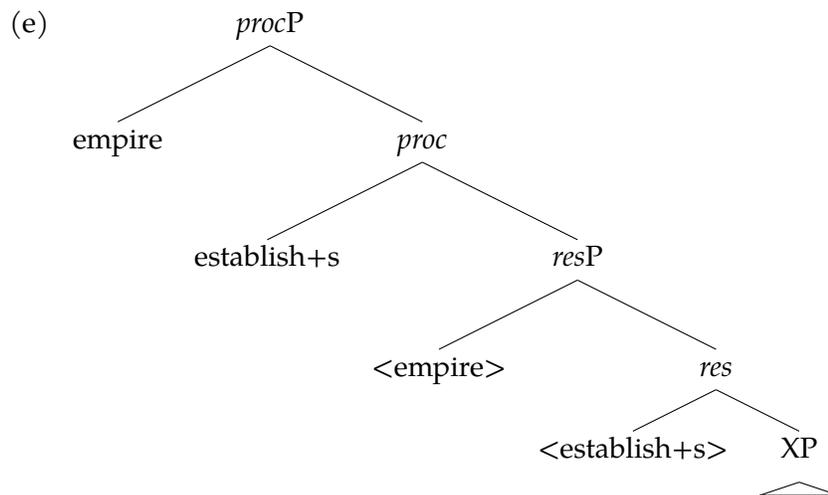
intransitive/passive/unaccusative pairs in Archaic Chinese discussed in the literature we have a relation similar to *break-broke/broken* in English, which differ with respect to their event decomposition (Levin & Rappaport Hovav 1995: 24).²⁷ We can say ‘The vase is broken’, using the participle as an adjective.

- (17) (a) 全其力，凝其德。 (Xunzi, wang zhi, LAC)
 Quán qí lì níng (*[ŋ](r)əŋ) qí dé
 Complete poss strength consolidate poss virtue
 ‘[One should] Complete one’s strength and consolidate one’s virtue.’
- (b) 德凝則諸侯不能削也， (Xunzi, wang zhi, LAC)
 dé nìng (*[ŋ](r)əŋ-s) zé zhūhóu bù néng
 virtue consolidated then feudal.lord NEG able
 xuè yě
 decrease SFP
 ‘If the virtue is consolidated, the feudal lords will not decrease in importance.’

For the following verbs *zhèn* 振 ‘regulate/regulated’, *dìng* 定 ‘establish/established’, *huàn* 宦 ‘employ/employed’, and *tuì* 退 ‘withdraw/withdrawn’ no tone alternations are reported in the consulted historical morphophonological literature. The examples (18a,b,c) have an UNDERGOER_i-RESULTEE_i structure, the verbs are unaccusative. (18b) is modified by the perfective adverb *yǐ* 已, which increasingly marks all kinds of verbs in the late LAC and EMC periods. Meisterernst (2015a) and Aldridge & Meisterernst (2018) propose that the increase in frequency and the employment of *yǐ* not only with telic but also with activity verbs might have been triggered by the loss of morphology and an increase of analytic lexical expressions of aspectual meanings. Example (18c) includes a durational adverbial indicating resultant state duration (Meisterernst 2015b); in (18d) all three heads are present, the verb has an INITIATOR_i-UNDERGOER_i-RESULTEE_i structure. (18e) is the structure of (18a,b,c) based on (18d).

²⁷ Levin & Rappaport Hovav (1995: 24) show that non-causative *break* is decomposed into *BECOME* and *BROKEN*. *BROKEN* is the element of meaning that “sets the state of being broken apart from other states.”

- (18) (a) 若以邪臨民，陷而不振， (Guoyu, Luyu shang, LAC)
 Ruò yǐ xié lín mín xiàn ér bù
 If with bad approach people sink CON NEG
 zhèn (*tər-s)
 regulate
 ‘If one approaches the people with badness, they will sink and not be consolidated.’
- (b) 今天下已定，法出一， (Shiji: 6; 255, EMC)
 Jīn tiānxià yǐ dìng (*N-tʂeŋ-s) fǎ lìng chū yī,
 Now empire PF establish law order go.out one ...
 ‘Now, the empire has been/is pacified and all the laws and orders are issued from one point; ...’
- (c) 曰：宦三年矣，未知母之存否。 (Zuozhuan, Xuangong 2, LAC)
 Yuē huàn (OCM *gwrâns) sān nián yǐ wèi zhī
 Say employ three year SFFCOS NEG_{Asp} know
 mǔ zhī cún fǒu
 mother GEN be.there NEG
 ‘He said: I have been employed for three years, and I haven’t learned whether my mother is still alive or not.’
- (d) 不對而退，見天子， (Zuozhuan, Min 2, LAC)
 bù duì ér tuì (*ŋʌ[u]p-s) jiàn tài zǐ
 NEG answer CON withdraw meet heir
 ‘he did not answer and withdrew and met the heir.’



The structure in (18e) follows Ramchand (2008), who proposes a process of merge and remerge rather than a head and argument movement (Ramchand

2008: 59) analysis. In (Ramchand 2018: 41), this is labeled ‘spanning’. In this analysis, the initial merge position is not privileged and elements may merge and project and remerge (move) and project at a later stage of the derivation. This idea is taken seriously by “creating a new association line without going through the redundant step of making a copy” (Ramchand, *idem*). Although Ramchand represents Rmerge using copies, they are not actually necessary in her system. Ramchand (2008: 60) does not assume thematic roles, and the specifier positions she proposes are not mutually exclusive. This means that it is possible for a single argument to appear in more than one position simultaneously, “The simplest assumption is that all the projections of the first phase require a filled specifier” (Ramchand 2008: 60); positions can be filled by Merge or by Rmerge. According to the semantics of the lexical items, the nominal projections filling the specifiers of the sub-evental heads can be distinct or identical (Ramchand, *idem*).

3.2 *Verbs with *-s in Late Archaic Chinese and their syntactic constraints*

In this section, we will discuss the three diagnostics proposed for the identification of a *res* head in Ramchand (2008) with several representative verbs, and we will show how they account for the suffix *-s in LAC. The diagnostics are: compatibility with local and resultant state PPs, anchoring of the event structure to tense, i.e. the punctuality of the verb, and combination with durational adverbials corresponding to English ‘for’ PPs. Since the latter can also refer to the duration of a resultant state, they actually provide evidence for the existence of a *res* head in contrast to *for*-adverbials in English.

3.2.1 *With a local PP, expressing a final point*

First, we discuss examples with resultant state PPs describing the final location of the UNDERGOER-RESULTEE in a dynamic event (Ramchand 2008). In the examples (19a,b), only the UNDERGOER_i-RESULTEE_i is present in the structure; the final location and state of the event are expressed by a PP. In (19a), the preposition *zài* 在 ‘in, at’ expresses the final location of ‘clothes attached to the body’; in (19b), with the preposition *yú* 於, the most general relational preposition in LAC, the final location of the sacrificial animals is expressed. The preposition *yú* 于 in (19c) is a variant of the preposition in (19b). The example in (19c) includes the initiator in its structure INITIATOR-UNDERGOER_i-RESULTEE_i. The initiator is not identical to the UNDERGOER_i-RESULTEE_i; the PP also refers to a result state, i.e. the appearance at court, required for enthronement.

- (19) (a) 我小人也，衣服附在吾身， (Zuozhuan, Xianggong 31, LAC)
 Wǒ xiǎo rén yě yī fú fù (*N-p(r)oʔ-s) zài
 1P small person NOM clothes clothes attach at
 wú shēn
 1P body
 ‘I am a small man; the clothes are **attached to my body**.’
- (b) 納牲詔於庭，血毛詔於室， (Liji, Liqi, EMC)
 nà shēng zhào (*taw-s) yú tíng xuè máo
 enter sacrificial.animal announce at hall blood hair
 zhào yú shì
 announce at chamber
 ‘The bringing in of the sacrificial animals is announced in the hall; blood and hair are announced in the chamber.’
- (c) 召莊公于鄭而立之， (Zuozhuan, Huan 2, LAC)
 Zhào (*[d]raw-s) Zhuāng gōng yú Zhèng ér lì
 Call Zhuang duke to Zheng CON enthrone
 zhī
 3OBJ
 ‘He called duke Zhuang **to Zheng** and enthroned him.’

Verbs such as *arrive* discussed in example (20) are typical achievement verbs in Vendler’s (1967) terms; they are generally analyzed as unaccusatives. Ramchand proposes that these verbs have only one DP argument “which initiates its own transition to a final locational state” (2008: 79); i.e. they have an INITIATOR_i-UNDERGOER_i-RESULTEE_i structure. In the list of *qusheng* verbs discussed here, four different verbs have meanings related to *arrive*.²⁸ The following examples show the verbs *zhì* 至, the most common *arrive* verb, and the less frequent verb *lì* 戾 ‘arrive at, lead to’.²⁹ The examples in (20 a, 20 b) illustrate

28 One reviewer asked what the semantic properties of ARRIVE were, before the suffix was added. In our analysis, we follow the idea discussed in McFadden (2015) that a *res* head included in the basic semantics of the verb can be marked by affixation, without actually being the result of derivation. The affix can simply be part of a lexeme with typical achievement meaning, possibly as result of an earlier, now opaque, process. As shown in table 6, many of the verbs in *qusheng* are telic, often achievements (unaccusative or transitive), which would be the Vendlerian correspondence to *res* verbs in Ramchand’s terms. Ramchand (2018: 90) assumes that the ending of the *en/ed* participle in English does not have an independent status, but is a morphological part of a member of the semantic domain of the respective verb, i.e. of *initP*, *procP*, or *resP* features; and it is systematically and productively related to the bare verb member of this domain. We assume something similar for the earliest stages of the Archaic Chinese morphology, but in LAC, the productivity of this process is already widely reduced, if existent at all.

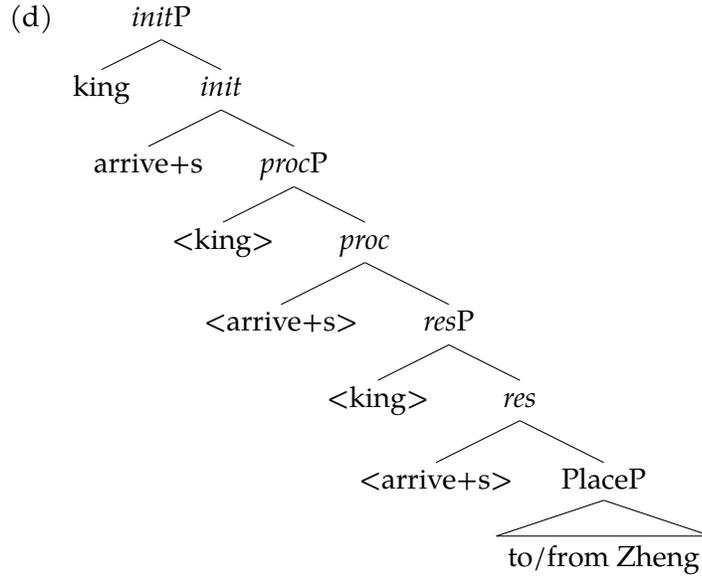
29 The meaning *arrive* is not recorded for this verb in Pulleyblank (1991). Pulleyblank lists two

two different possibilities for expressing the final location with the intransitive *res verb* *zhì* ‘arrive’ by two different prepositions, the preposition *zì* 自 ‘from’, and the more neutral preposition *yú* ‘at’. The preposition *zì* refers to the direction from which the final location is reached; this final location is what is relevant in the construction.³⁰ This means that both PPs refer to the final location of the RESULTEE-UNDERGOER; all examples have the structure INITIATOR_i-UNDERGOER_i-RESULTEE_i. (20 d) presents the structure of (20 a).

- (20) (a) 王至自鄭, (Guoyu, Zhouyu zhong, LAC)
*Wáng zhì (*ti[t]-s) zì Zhèng*
 King arrive from Zheng
 ‘the king arrived from Zheng,’
- (b) 地南至于颍陰, (Guoyu, Qiyu, LAC)
*Dì nán zhì (*ti[t]-s) yú Táoyīn*
 Land south reach PREP Taoyin
 ‘In the south, the land reached up to Taoyin.’
- (c) 天災流行，戾于弊邑, (Guoyu, Lu shang, LAC)
tiān zāi liú.xíng lì ([r]ʔe[t]-s) yú bì*
 heaven misfortune spread.wide arrive PREP fallen
yǐ
 city
 ‘Heavenly misfortune has spread widely and it arrived at our fallen city, ...’

different words written with this character, one in the reading *lì* (EMC lɛj^h) ‘do violence, transgress; guilt, crime; perverse’, and one in the reading *liè* (EMC lɛt) ‘twist, turn’. The first reading is also listed in Unger (1989); the verb has a *qusheng* reading, it allows a result reading and the related nouns are derivations from the verbal result reading.

30 One of the reviewers was doubtful about the contribution of the preposition *zì* to the expression of final location. We assume that it is not the PP itself, which refers to the final location, but the PP supports the fact that the result of the movement ‘from’ a location ends in a result state of ‘being’ in an unmentioned final location. The preposition does not refer to a path, which would invalidate our analysis.



3.2.2 Non-explicit resultatives with DP objects

In this section, we discuss a few transitive verbs for which *-s has been reconstructed. For none of these verbs is tonal variation for the transitive/unaccusative alternation reported in the consulted literature (e.g. Unger 1989, Pulleyblank 1991, Jin 2006, Schuessler 2007, Baxter & Sagart 2014). Nevertheless, we propose that all four verbs in (22a,b,c,d) have the structure INITIATOR-UNDERGOER_I-RESULTEE_I. The initiator is not identical to the UNDERGOER_I-RESULTEE_I, which is realized as the internal argument in all four examples. Two of the verbs have already been discussed above in their unaccusative variant. These are the verbs *dìng* 定 ‘establish/established’ and *huàn* 宦 ‘employ/employed’ in (22a,b) corresponding to the examples in (18b) and (18c) respectively. In both cases, we propose that the transitive verbs also include a *res* head, similar to verbs such as ‘break’ or ‘destroy’ in English. Ramchand (2018: 78) gives the following semantic analysis for the *init*, *proc*, *res* verb ‘destroy’.

$$(21) \quad [[\text{destroy}]] = \langle \text{destroy}, \langle \mathbf{init}, \mathbf{proc}, \mathbf{res} \rangle, \lambda e \lambda e_{init} \lambda e_{proc} \lambda e_{res} [e = e_{init} \rightarrow [e_{proc} \rightarrow e_{res} \wedge \text{destroy}(e_{init}) \wedge \text{destroy}(e_{proc}) \wedge \text{destroy}(e_{res})]] \rangle$$

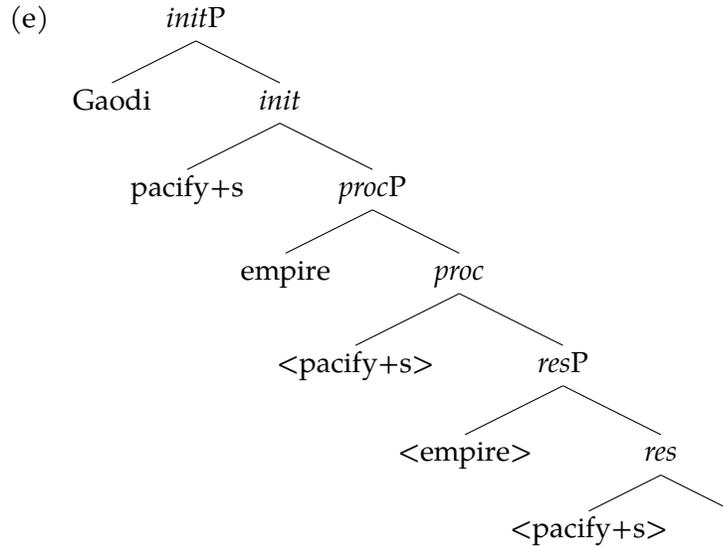
According to Ramchand (2008: 52), UNDERGOERS “are individuated entities whose position/state or motion/change is homomorphically related to some PATH. UNDERGOERS are ‘subjects’ of processes.” RESULTEEs are “the individuated entities whose state is described with respect to the resultative property/Ground.” (idem) In a case such as (22a) with the verb *dìng* ‘pacify’, ‘the

empire’ is the entity which is homomorphically related to the path the pacification process takes; at the same time ‘the empire’ is also the entity whose final state or ground is described. However, the *init*, *proc*, and *res* eventualities are presented as overlapping.³¹ The verbs in (22c,d) are *jì* 記 ‘record, note down’, and the transitive verb *lài* 賴 ‘profit from, take advantage of, lean on’. The relation of the respective sub-evental heads with their specifiers is less straightforward in (22 d), but in this example, too, the internal argument, the ‘riches’, are what is undergoing the process of profiting, and also the result of the profiting process ‘profit taken’. All situations are perceived as punctual; they have only one tense specification. A single verb identifies both *proc* and *res*; the verb identifies the initiation and the result state at the same time, and the three subevents must be interpreted as overlapping (Ramchand 2008: 77). Ramchand (2008: 85) does not explicitly discuss the details of the overlapping of the different eventualities included in lexical items such as ‘destroy’, but some evidence for her proposal may come from the constraint that duration phrases with telic, dynamic verbs as in (22 a) and in (26) below never refer to the duration of the event in Archaic Chinese, but always to the duration of a result state (Meisterernst 2015b). This shows that only the *res* subevent, i.e. the resulting state, is visible for the duration phrase. The *proc* subevent, although assumed to be present following Ramchand’s theory, is not visible in the event structure of the verb. This analysis is additionally supported by the presence of the perfective adverb *yǐ* ‘already’, which requires viewing the situation as a single whole, without distinguishing between an initiation event, a process event, and a result state.

- (22) (a) 高帝已定天下七年，立劉仲為代王。 (Shiji: 106; 2821, EMC)
*Gāo dì yǐ dìng (*N-tʃeŋ-s) tiānxià qī nián*
 Gao emperor already pacify empire seven year
lì Liú Zhōng wéi Dài wáng
 establish Liu Zhong become Dai king
 ‘After Gaodi had already pacified the empire for seven years, he enthroned Liu Zhong as king of Dai.’
- (b) 貧病者，納宦其子。 (Guoyu, Yueyu shang, LAC)
*pín bìng zhě nà huàn (OCM *gwrâns) qí zǐ*
 poor sick REL bring.in employ POSS son
 ‘Those who are poor and sick, bring in their sons and put them in employment.’

31 According to Ramchand (2008: 64), “The existence of an event entails the existence of at least one identifying state. The state in question is always a mereological subpart of that event.”

- (c) 無國不記，記姦之位，君盟替矣， (Zuozhuan, Xi 7, LAC)
 wú guó bù jì (*C.k(r)ə(?)*-s*) jì jiān zhī
 NEG.have state NEG report report deception GEN
 wèi jūn méng tì yǐ
 position prince covenant abolish SFP_{COS}
 ‘... there is no state that will not record it, they will record the position of the traitor and your covenant will be abolished.’
- (d) 今殺君而賴其富，貪且反義。 (Guoyu, Jin 2, LAC)
 jīn shā jūn ér lài (*rʃa[t]*-s*) qí fù tān
 now kill ruler CON take.advantage POSS fortune greedy
 qiě fǎn yì
 CON oppose right
 ‘Now, to kill the ruler and take advantage of his fortune is both greedy and against the right.’



Some of the verbs with a *qusheng* reading do not obviously fit into the [init, proc, res] category immediately. This includes for instance the verbs of teaching and instruction, which can also show suffixation with **-s*. Different functions have been proposed for the **-s* suffix in the verbs in example (23). These include a deverbalization function, changing verbs into nouns, which has been assumed in the literature as one of the main functions since Downer (1959), Mei (1988), Jin (2006), Hill (2014), etc., and a causativizing function, i.e. a valency-increasing function (Schuessler 2007, Mei 2012, Xing & Schuessler 2020, to mention only a few). For the verb *sì* (*s-m-lək-s) 食 ‘feed’ in (23), a derivation of *shí* (*mə-lək) ‘eat’, both a deverbalization function (Jin 2006: 312) and a causativization function have been proposed for the suffix.

For *yìn* (*q(r)[ə]mʔ-s) 飲 ‘cause to drink’, a derivation of *yǐn* (*q(r)[u]mʔ) ‘drink’, a causativization function has been proposed (e.g. Jin 2006: 393). For the first of the two verbs of teaching, *jiào* 教 ‘teach, instruct’, Baxter & Sagart (2014) and Pulleyblank (1991) assume that the *qusheng* reading accounts for the nominal derivation ‘teaching, instruction’, and that the verbal reading ‘teach’ has a *pingsheng* reading *jiāo*. Unger only lists the *qusheng* reading for the verbal function. Jin (2006) also analyzes *jiào* in the *qusheng* reading as (a mainly transitive) verb, but he discusses it in the context of voicing alternation of the initial consonant; he does not comment on the function of the suffix. For the second verb of instruction *huì* 誨 ‘instruct’, only a *qusheng* reading is recorded; it is not discussed in Jin (2006). The different analyses for the verbs in (23) illustrate the diversity of functions proposed for the *-s suffix.³²

- (23) 《詩》曰：「飲之食之，教之誨之。」 (Xunzi, Dalüe, LAC)
Shī yuē yìn (*q(r)[ə]mʔ-s) *zhī sì* (*s-m-lək-s) *zhī*
 Odes say drink_{caus} 3OBJ feed 3OBJ
jiào (*s.kʃraw-s) *zhī huì* (*mʃəə(ʔ)-s) *zhī*
 teach 3OBJ instruct 3OBJ
 ‘The odes say, “give them to drink, feed them, teach them, instruct them”.’

Whether we can argue for the analysis of the *-s suffix as an overt *res* in these cases has to be shown by the investigation of more data.³³ For the time being, we can only claim that they have the same INITIATOR-UNDERGOER₁-RESULTEE₁ structure as the verbs discussed in (22). The initiator is not identical to the UNDERGOER₁-RESULTEE₁, which is realized as the internal argument of all four verbs; only one tense specification is available for the event.

³² Baxter & Sagart (2014) assume a nominal meaning for the *qusheng*.

³³ This is one of the questions that the large scale project of which this article is only the first preliminary step has to address. This project will be supported by the DFG (German Research Council). It is very well possible that the suffix *-s has two different functions, a causative and a resultative, as it has been proposed in the literature. But tests have to be applied to provide more evidence. According to Schuessler (2007: 38), the *-s suffix is the youngest layer of Old Chinese morphology; it might still have been productive to a certain extent, but it was certainly transparent to the speaker of the time. But for many of the verbs, which do not show a morphologically marked alternation between causative and unaccusative meanings, we probably have to assume that the suffix is not productive any more and that its original functions may only be reconstructable on the basis of patterns established by the more unambiguous cases.

3.2.3 *Semelfactives*

Among the verbs with a reconstructed *-s suffix are also a few verbs which have been labeled as semelfactives in Smith (1997), adding a fifth class to the traditional Vendlerian (1967) four classes *state*, *activity*, *accomplishment*, and *achievement*. According to Smith (1997: 3), semelfactives and achievements have the features ‘dynamic, instantaneous’ in common, whereas semelfactives and activities have the features ‘dynamic’ and ‘atelic’ in common. Rothstein (2012: 63) argues for four basic verb classes, characterized by two basic features; these are ‘hold at non-extended periods ([near] instants)’ on the one hand, and ‘iterable’ on the other. Achievements hold ‘at a non-extended period’ and are non-iterable; activities are iterable and non-instantaneous. Rothstein (idem) claims that semelfactives and activities are subcategories of the same class. Activities are characterized by minimal events (Dowty 1979) that hold at intervals. According to Rothstein (2012: 64), the iterated minimal events in activities are reanalyzed as one single event in the denotation of an activity predicate and not as a plurality of events. Some activity events, however, involve natural atomic minimal events, such as in the verb *jump*. These verbs can have both a semelfactive, i.e., the instantaneous event, and an activity interpretation (Rothstein, idem). Other verbs of this kind are ‘knock’, ‘sneeze’, etc. They are, for instance, characterized by the fact that they can combine with *for*-adverbials, when referring to an activity.

- (24) (a) Mary coughed. (Semelfactive)
 (b) Mary coughed for an hour. (Activity) (cf. Smith 1997: 18).

In Ramchand’s system, semelfactives are ambiguous between [proc] and [proc, res] (Ramchand 2008: 79). Their event structure is similar to the structure of verbs such as *arrive*; i.e., they are INITIATOR_i-UNDERGOER_i-RESULTEE_i verbs. Only one DP functions as both the initiator and the resultee of the punctual situation expressed by the verb. Following Ramchand’s analysis of semelfactives, we propose that if semelfactives are reconstructed with an *-s suffix as in the examples in (25), the suffix appears as an overt *res* head; semelfactives in LAC are liable for an analysis as [init, proc, res].

- (25) (a) 子路共之，三嗅而作。 (Lunyu, Xiang Dang, LAC)
 Zǐ Lù gòng zhī sān xiù (*q^hu(?)^{-s}) ér zuò
 Zi Lu join 3OBJ three sniff.at CON rise
 ‘Zi Lu joined it, it [the hen-pheasant] sniffed [at him] three times and rose.’

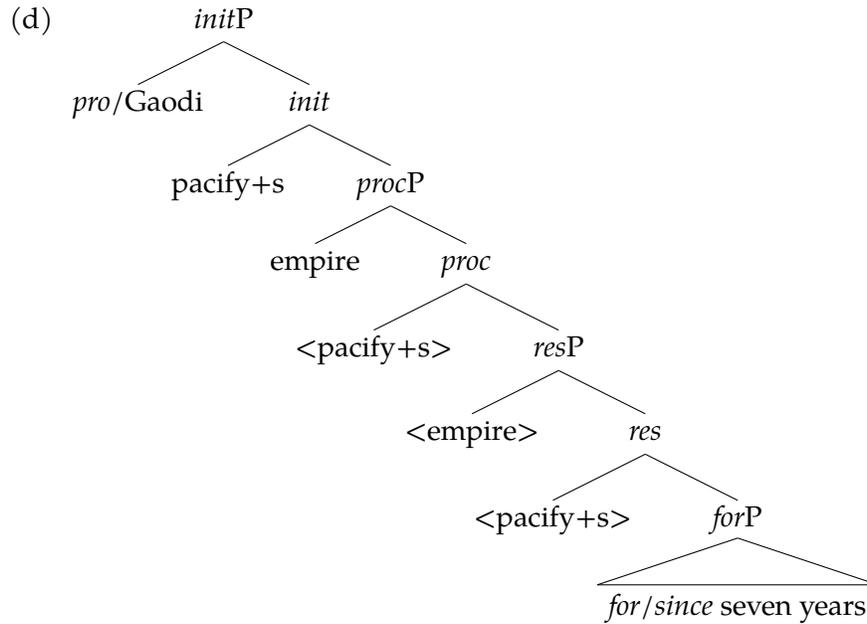
- (b) 冬藏殃敗，民多鼾嚏。 (Liji, Yueling, EMC)
 Dōng zàng yāng bài mín duō qí
 Winter storage damage destroy people often cold
 ti (*[t]ʃi[t]-s)
 sneeze
 ‘In winter, the storage would become damaged and destroyed
 and the people often would get colds and sneeze.’

3.2.4 Result verbs and duration phrases

In this brief section we will demonstrate that duration phrases similar to English *for an hour* can occur with achievement verbs without violating Ramchand’s incompatibility constraint of a *res* head with durational adverbials (Ramchand 2008: 84). With respect to Modern Chinese, e.g., Li (1987) and Ernst (1987) already demonstrated that the incompatibility constraint of duration adverbials in English does not account for Chinese achievements; i.e. they can appear with telic predicates which do not allow a process reading according to their lexical aspectual structure. With achievement verbs, Chinese duration adverbials corresponding to *for*-adverbials in English refer to the **duration since the completion of the event (SCE)**, i.e. to the duration of the state resulting from the previous telic event. SCE contrasts with **event duration** which refers to the duration of a state or an atelic situation. Lin (2008) labels the two different categories in Modern Mandarin R-(result-)-related duratives, and P-(process-)-related duratives respectively. Meisterernst (2015b) shows that the same constraints that account for Modern Mandarin duration phrases also account for duration phrases in LAC and EMC. Meisterernst labels the R-related duration **resultant state duration** in contrast to **situational duration** referring to activities, processes and states. Situational duration phrases are permitted in pre- and postverbal position, whereas resultant state duration phrases are confined to postverbal position (Meisterernst 2015b: 225f), occupying the complement of *res*P. The example in (26 a) shows a verb which does not have a *qusheng* reading in Middle Chinese; i.e., it does not have an overtly marked *res* head, although it has resultative semantics. The duration phrase ‘for nine years’ refers to the time elapsed since Qin Shihuang was enthroned. The examples in (26b,c) have already been cited as examples for verbs with an overt *res* head in (18 c) and (22 a) respectively. In both examples, the duration phrase corresponding to a *for*-adverbial in English refers to the duration of a resultant state. Due to this particular constraint, the occurrence of a duration phrase does not provide counter-evidence to the existence of a *res* head as one of the subevents included in the semantics of the verb, but it rather confirms its existence. The *res* head

is the precondition for a **resultant state** reading of the adverbial. But (26 a) also demonstrates that not all verbs with *res* semantics are morphologically marked. The examples in (26a,b) have an UNDERGOER₁-RESULTEE₁ structure, the example in (26 c) has an INITIATOR-UNDERGOER₁-RESULTEE₁ structure. The analysis of (26 c) is in (26 d); we propose that the duration phrase is in the complement of *res*P expressing the quality of the result of the VP.

- (26) (a) 是歲，秦始皇立九年矣。 (Zhanguo ce, Chu 4, LAC-EMC)
 Shì suì Qín Shìhuáng lì (*k.rəp) jiǔ nián yǐ
 This year Qin Shihuang enthrone nine year SFP_{COS}
 ‘This year, Qin Shihuang was enthroned for nine years.’
- (b) 曰：宦三年矣，未知母之存否。 (Zuozhuan, Xuangong 2, LAC)
 Yuē huàn (OCM *gwrâns) sān nián yǐ wèi zhī
 Say employ three year SFP_{COS} NEG_{Asp} know
 mǔ zhī cún fǒu
 mother GEN be.there NEG
 ‘He said: I have been employed for three years, and I haven’t learned whether me mother is still alive or not.’
- (c) 高帝已定天下七年，立劉仲為代王。 (Shiji: 106; 2821, EMC)
 Gāo dì yǐ dìng (*N-tʃeŋ-s) tiānxià qī nián
 Gao emperor already pacify empire seven year
 lì Liú Zhòng wéi Dài wáng
 establish Liu Zhong become Dai king
 ‘After Gaodi had already pacified the empire for seven years, he enthroned Liu Zhong as king of Dai.’



The preceding examples provided some evidence for the existence of verbs with a morphologically marked *res* head in Archaic Chinese. These verbs can show alternations between the *qusheng* and other readings, but they do not have to. The diagnostics employed so far in this preliminary study equally accounted for intransitive/unaccusative and for some transitive/causative verbs. According to this evidence, the distinction between the two different functions of *-s should be reconsidered, since an analysis of *-s as an overt *res* head provides a unified account for the two ‘increasing valency’ and ‘decreasing valency’ proposals. More empirical data has to be checked though in order to support the present proposal. Additionally, not all verbs which seem to include a *res*-head show suffixation with *-s.

4 NEWLY EMERGING STRUCTURES TO EXPRESS [PROC] OR [RES]

As already mentioned, derivation by affixation was not productive in LAC any more and, although *-s was probably not lost entirely at the end of the LAC period, its function certainly had become opaque for the language learner around this time. The comparison of the LAC texts *Zuozhuan* and *Guoyu* with the EMC text *Shiji* shows a substantial increase in disyllabification and verbal compounding (e.g. He 1992, Aldridge & Meisterernst 2018, Meisterernst 2020c). They also show an increase in the employment of perfective adverbs (Meisterernst 2015a). Additionally, new structures expressing result emerge at the end of the LAC and the beginning of the EMC periods. In this article,

we will briefly introduce two different syntactic innovations of EMC which emerged in order to replace the previously overt *res*-head at the end of the LAC period:

- a) Disyllabification in order to make the process or result heads of the verb visible;
- b) The emergence of new syntactic structures expressing result.

4.1 Disyllabification

The obvious increase of disyllabic words at the end of the LAC period has been widely discussed in the Chinese diachronic literature (e.g. He 1992, Cheng 1992). Different hypotheses regarding the emergence of disyllabification at the beginning of the Early Middle Chinese period have been proposed. These include the loss of morphology leading to changes in the syntax (Wei 2000, Aldridge & Meisterernst 2018), and changes in the prosody of Chinese (e.g. Mei 1991, Zhuang 2014, Feng & Liu 2019). Additionally, processes from Implicitness to Explicitness have been proposed in Hu (2016). The morphological processes discussed are often confined to the loss of the causative prefix **s-* (Mei 2012, Zhuang 2014, but see Aldridge & Meisterernst 2018) leading to overt causative constructions.³⁴ Despite the substantial number of analyses of the disyllabification process of verbs starting at the end of the LAC period, a direct connection between, for instance, the loss of the **-s* suffix and the development of disyllabification has not been proposed yet. Basciano (2010) provides an overview of the causativization morphology proposed, briefly discussed above (see particularly tables 1, 2), but her focus lies on verbal compounding and causativity and the overt realization of the different subevents in complex verbs in Modern Mandarin. She does not go into the details of the diachronic development of the newly emerging structures of EMC. The sub-evental structure of the monosyllabic verbs of Archaic Chinese proposed above has not been discussed in any detail so far. This is also not the purpose of the following brief introduction to the issue of disyllabification. In our study we are predominantly interested in the connection between the loss of a *res* head realized by the suffix **-s* and the introduction of a V_2 with resultative semantics, which might have replaced the function of the former suffix.³⁵ We

³⁴ For some of the examples reconstructed in Mei (1991, 2015) and cited e.g. in Zhuang (2014) as cases of a causative-unaccusative alternation marked by voicing alternation, most scholars propose a different analysis. See table 1.

³⁵ For this reason, the discussion of typical cases of causativization such as the contrasting pair *yuǎn/yuàn* 遠 ‘far, distant/cause to be distant, remove’ will be left out. We also do not discuss pairs including denominal verbs such as *wáng/wàng* 王 ‘king/be king rule’ (Pulleyblank 1991)

will demonstrate that different strategies are possible and that both the *proc*- or the *res*-part can be added to the original *res*-verb of LAC in the disyllabic verbal constructions or compounds of Middle Chinese. Only three representative verbs will be briefly introduced here, starting with the verb *zhì* ‘arrive’, discussed above (ex. 20).

Hu (2016) analyzes the disyllabification of 至 *zhì* ‘arrive’ into 往至 *wǎngzhì* ‘go arrive’ as instantiation of the implicit-explicitness process (see also ex. (11) and its discussion). In this case, the process [*proc*] part has been made explicit. The original synthetic intransitive verb *zhì* of the structure [*init,proc, res*] combines with a verbal root overtly realizing the *proc* head, semantically expressing manner of motion. *Zhì* appears as V_2 , only realizing the *res* head; the lexical root replaces the suffix in this function. Although it has been claimed that Modern Chinese does not have inherently telic verbs (Tai 1984, Sybesma 1997, Aldridge & Meisterernst 2018), Basciano (2010) proposes an overt *res* head, claiming that V_2 in resultative constructions in Modern Mandarin is a change of state verb; these COS verbs include adjectives (Basciano 2010: 352).³⁶

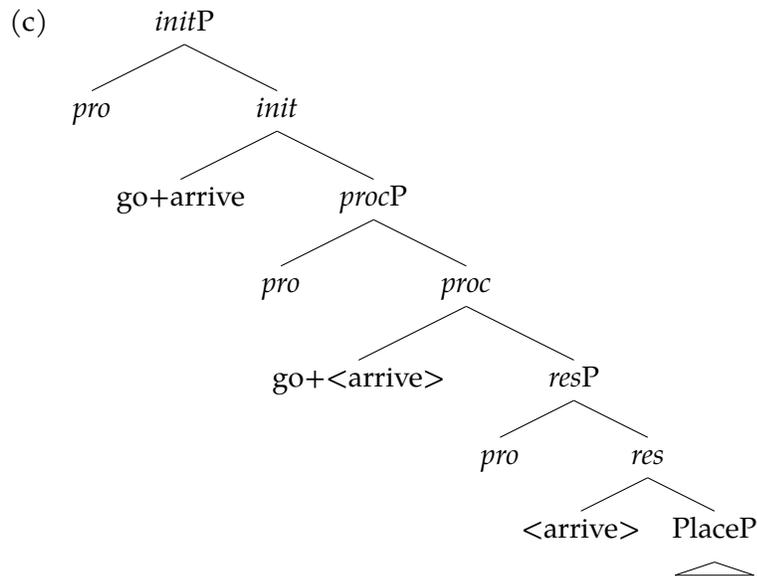
Basciano (2010: 354) proposes that V_2 itself indicates the result directly in Chinese resultative constructions. Since V_2 is a verb (this includes adjectives), it licenses a specifier position to host the resultee. The resultative interpretation comes from the causal embedding, the ‘leads-to’ relation; “the semantic composition rules interpret embedded subevental descriptions as the ‘leads-to’ relation” (Basciano, idem). Example (27 a=11 a) is from LAC, example (27 b=11 b) is from EMC, the verb *wǎng* overtly refers to the process part of the predication; the structure is $\text{INITIATOR}_1\text{-UNDERGOER}_1\text{-RESULTEE}_i$; i.e., the argument structure of the compound is identical to the structure of *zhì* alone, although a second verb is involved. The placeP is a DP in (27 b) and not a PP as in the examples in (27 a) and in (20). The second complex VP in (27 b) is discussed in (28).

in this paper. See also table 1.

³⁶ AdjectiveP resultatives in English with closed-scale adjectives, as in (i), appear in the complement of *proc*P, similar to incremental theme and path objects; no intervening result is required (Basciano 2010: 340, following Wechsler 2005). Adjectives such as in (ii), when the subject in the resultative construction is not an argument of the verb, appear in the complement of a result subevent projection, namely, in a full small clause mediated by the *res* head itself (Basciano 2010: 341, Ramchand 2008).

- (i) *I wiped the table clean.*
- (ii) *I run my shoes ragged*

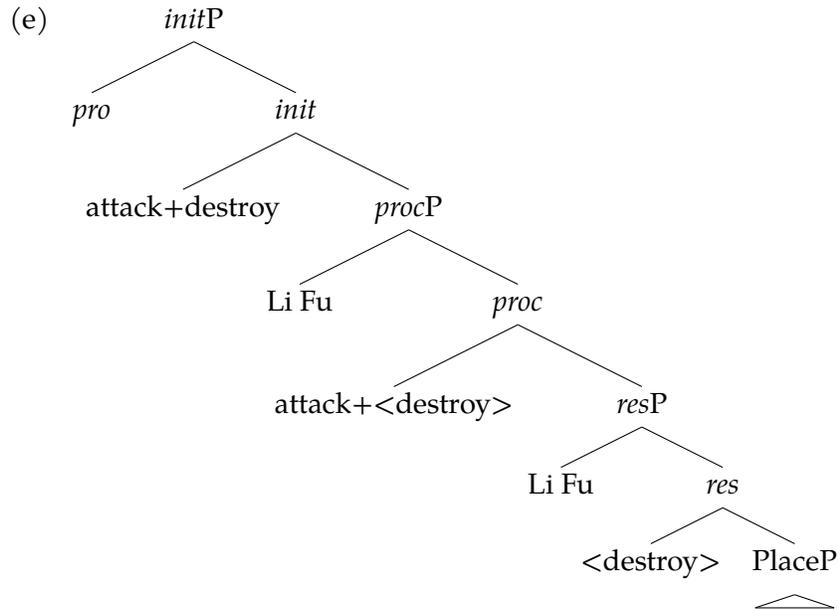
- (27) (a) 三戰三北，乃至於吳。
 Sān zhàn sān bèi nǎi zhì (*ti[t]-s) yú Wú
 Three fight three flight then arrive PREP Wu
 ‘After three fights and three flights they arrived at Wu.’
 (Guoyu, Wuyu, LAC)
- (b) 諸比丘受佛語已，即往至屋所，以木石打破壞之。
 Zhū bīqiū shòu fó yǔ yǐ jí wǎngzhì
 PL monk receive Buddha speech ɿ then go.arrive
 wū suǒ yǐ mù shì dǎpò huài zhī
 house place, with wood stone hit.destroy destroy 3OBJ
 ‘and after the monks had listened to the speech of the Buddha,
 they went and arrived at the place of the house, and destroyed
 it with wood and stones.’
 (Taisho 1462, 8, EMC)



The following examples show the *qusheng* verb 破 *pò* (*p^hʃaj-s) ‘destroy, destroyed’ and the Middle Chinese compounds with *pò*, *dǎpò* 打破 ‘hit+destroy’, and *jīpò* 擊破 ‘attack+destroy’ (He 1992, Hu 2016). Similar to the compound with *zhì* in (27), an overt realization of the process [proc] subevent (manner of motion) is added to the lexical root *pò*. The original *res* morpheme *-s of *pò*, the function of which had become opaque, is replaced by the lexical root *pò* as *res* head. The examples (28a,b) are from LAC texts, the examples in (28c,d) are from Middle Chinese and from early EMC texts respectively. The verb *pò* in (28a) is unaccusative with the structure UNDERGOER₁-RESULTEE₁; in (28b), it is transitive with the structure INITIATOR-UNDERGOER₁-RESULTEE₁. The two EMC compounds V₁V₂ in (28c,d) have the structure INITIATOR-UNDERGOER₁-

RESULTEE_i; argument structure and meaning are identical to the transitive example in (28b). The initiator is not identical to the UNDERGOER_i-RESULTEE_i, which is realized as the internal argument in (28b,c,d). As in the examples in (22), all situations are perceived as punctual; they have only one tense specification. In contrast to (22) and (28b), two verbs are needed to identify *proc* and *res*; nevertheless, the three subevents must be interpreted as overlapping. Additional evidence for the analysis comes from (28d), in which a PP refers to the final location and state of the UNDERGOER_i-RESULTEE_i of the verbal compound. The analysis of (28d) is in (28e). According to Cao (1999), examples such as (28) and (29) are not true resultative constructions but a coordination of two verbs which share one object.

- (28) (a) 風至苔折，卵破子死。 (Xunzi, *quan xue*, LAC)
*Fēng zhì tiáo zhé luǎn pò (*p^hʃaj-s) zǐ sǐ*
 Wind arrive creeper break egg break child die
 ‘When wind hits and the creeper breaks, the eggs are destroyed and the baby bird dies.’
- (b) 有此必破軍殺將。 (Mozi, 14, LAC)
*yǒu cǐ bì pò (*p^hʃaj-s) jūn shā jiàng*
 have this certainly destroy army kill general
 ‘Like this, he will certainly destroy the army and kill the generals.’
- (c) 汝等可打破此屋者， (Taisho 1462,8, MC, 5th c. CE)
Rǔ děng kě dǎpò cǐ wū zhě
 You.PL can hit.destroy this house REL
 ‘You are the ones who are able to destroy this house, ...’
- (d) 擊破栗腹於鄗 (Shiji 34:1559, EMC, 100 BCE)
jīpò Lì Fù yú Hào
 attack.destroy Li Fu in Hao
 ‘and they destroyed Li Fu in Hao.’



In the third example with the verb 刺 *cì* (*[ts^h]ek-s)³⁷ ‘stab, kill’ the [res] part is added *cìshā* 刺殺 ‘stab+kill’, making the result explicit. Both lexical roots are transitive when appearing independently. The structure of the composition is INITIATOR-UNDERGOER,-RESULTEE_i, identical to the structure in the examples in (28). The situation in (29) is also viewed as punctual, the three subevents are overlapping and there is only one tense specification involved. Different from the example in (28), a new verbal root is merged in order to overtly express the *res* head and replace the opaque *res* morpheme.

- (29) (a) 既刺三郤，樂書弑厲公， (Guoyu, Jinyu 6, LAC)
Jì cì (*[ts^h]ek-s) *sān Xì Luán Shū shì Lì gōng*
 PERF stab three Xi Luan Shu murdered Li duke
 ‘After he had already stabbed the three Xi, Luan Shu murdered duke Li.’
- (b) 則不可，因而刺殺之。 (Shiji, Ci ke liezhuan, EMC)
Zé bù kě yīnér cì shā zhī
 Then NEG possible therefore stab kill 3OBJ
 ‘Then it was impossible, and therefore they stabbed them to death.’

³⁷ Baxter & Sagart (2014) provide a nominal reading for the suffixed variant.

4.2 *New resultative constructions*

The loss of derivational morphology also played a decisive role in the emergence of new structures, leading to the diachronic development of new causatives and resultatives, and to the emergence of the Modern Chinese system of aspectual markers. Two different structures are briefly introduced in this section, the aspectual/resultative YI structure involving a V_2 with the meaning ‘finish, terminate’, and a resultative construction with the verb *dé* 得 ‘get, obtain, manage to, can’.³⁸ Both structures differ from the disyllabification structures discussed above. In the YI-structure, an intransitive verb of termination is added to VP, following the internal argument if present, whereas in the disyllabification structure two verbal roots are combined, the internal argument following the compound. In the second structure, the resultative verb *dé* can be preceded by negation.

First we discuss the YI-structure with the resultative marker *yǐ* 已, grammaticalized from a verb ‘finish’, the source structure of the Modern Chinese perfective marker *le* 了 (Jiang 2001, 2007, Aldridge & Meisterernst 2018). In the examples (30a,b), two different monosyllabic verbs are followed by *yǐ*. Different from the disyllabic verbs in (27)–(29), the event structure of monosyllabic verbs is not spelled out overtly in EMC. The verb *zhì* ‘order/ordered’ in (30 a) is one of the verbs which show tonal alternation in LAC (see ex. (4)), the functions of which have become opaque in Middle Chinese; the verb *shuō* ‘talk, explain’ in example (30 b) is an activity verb. Termination and resultativity is expressed by *yǐ* in both cases. The verb in (30 c) is disyllabic; the two verbal roots are synonymous. The second verb *tui* was briefly discussed as a *qusheng* verb in (18 d); the disyllabic verb is followed by *yǐ*. The examples in (30a,c) have the structure UNDERGOER₁-RESULTEE₁. The verb in example (30 b) shows an INITIATOR-UNDERGOER structure, the initiator is not identical to the undergoer.

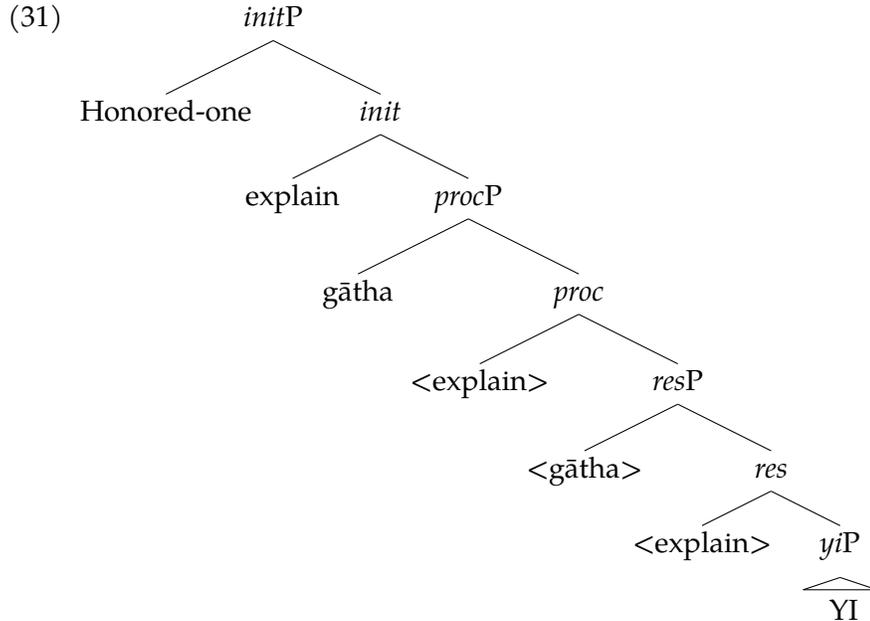
- (30) (a) 如是治已，而梵德王，睡眠不覺。(Taisho 190, 54, MC, 6th c. CE)
Rúshì zhì yǐ ér fàndé wáng shuìmián bù
 Such ordered YI and brahma-virtue king sleep NEG
jué
 wake.up
 ‘After everything was ordered like this, the brahma-king went to sleep and didn’t wake up.’

³⁸ The latter has also been discussed in Zhuang (2014). Zhuang assumes a causative meaning of *dé* in postverbal position. This is not well supported empirically or by the semantics of *dé* (see Meisterernst 2020c).

- (b) 爾時世尊說是偈已，告諸大眾，
 (Taisho 9, 262, 20b, MC, 5th c. CE)
 ěr shí shìzūn shuō shì jì yǐ gào
 that time world-honored-one explain this gātha ㄩㄛˊ tell
 zhū dà zhòng
 PL great multitude
 ‘At that time, after the World-Honored One had explained this
 gātha, he told all the multitudes ...’
- (c) 氣力衰退，衰退已，便心解脫、 (Taisho 26, 47, MC, 4th c. CE)
 qì lì shuāitui shuāitui yǐ biàn xīn
 energy strength deteriorate deteriorate ㄩㄛˊ then heart
 jiětuō
 liberate
 ‘... the strength of the *qi* deteriorated; after it was deteriorated,
 the heart was thereupon liberated.’

The exemplary analysis of example (30b) is in (31). Due to its position following the internal argument, *yǐ* requires an analysis different from the V_1V_2 constructions discussed in the previous section. In the resultative compounds in (27)–(29), a former synthetic [proc,res] structure is made overt by different verbal roots referring to the two subevents respectively. This process is very productive and allows considerable semantic flexibility in the relation of the two roots. Contrastingly, in the also very productive YI-structure, the same morpheme, expressing resultativity, is merged in the complement of *res*. Two different analyses seem possible, an analysis of *yǐ* heading a resultative small clause as proposed in Aldridge & Meisterernst (2018), or an analysis of *yiP* as the complement of *res*, similar to an AP expressing direct result following Ramchand (2008: 129); both analyses are very similar. The intransitive unaccusative function of *yǐ* is the basis for this analysis. The fact that *yǐ* does not move up to little *v* together with V_1 argues against the analysis of *yǐ* as the head of *resP*, parallel to the analyses of V_2 in (27)–(29). In Ramchand (2008), only particles in verb particle constructions such as *hand in*, *throw out*, can appear separated from the verb by an internal argument or other syntactic material cross-linguistically. According to her, the particle realizes the *res* head by moving to *res* obligatorily; word-order variation results from “whether a DP object is spelled out in its lowest or its highest predicational position” (Ramchand 2008: 132). These constructions involve ‘result augmentation’ (Levin & Rappaport Hovav 1998, cf. Ramchand 2008: 149). Ramchand proposes that the effects of ‘result augmentation’ should be handled by the narrow syn-sem computation itself (*idem*). The verb *shuō* 說 ‘talk, explain’ does not have a *res* head originally, but since the *yiP* requires a result reading ‘the explaining of

the *gātha* as being finished’, a covert *res* is added to the structure. This is not necessary in (30 c), because the disyllabic verb has an overt *res* head. Since we assume that *yǐ* does not function as the head of *res*, the structure is identical to that of (30 a).



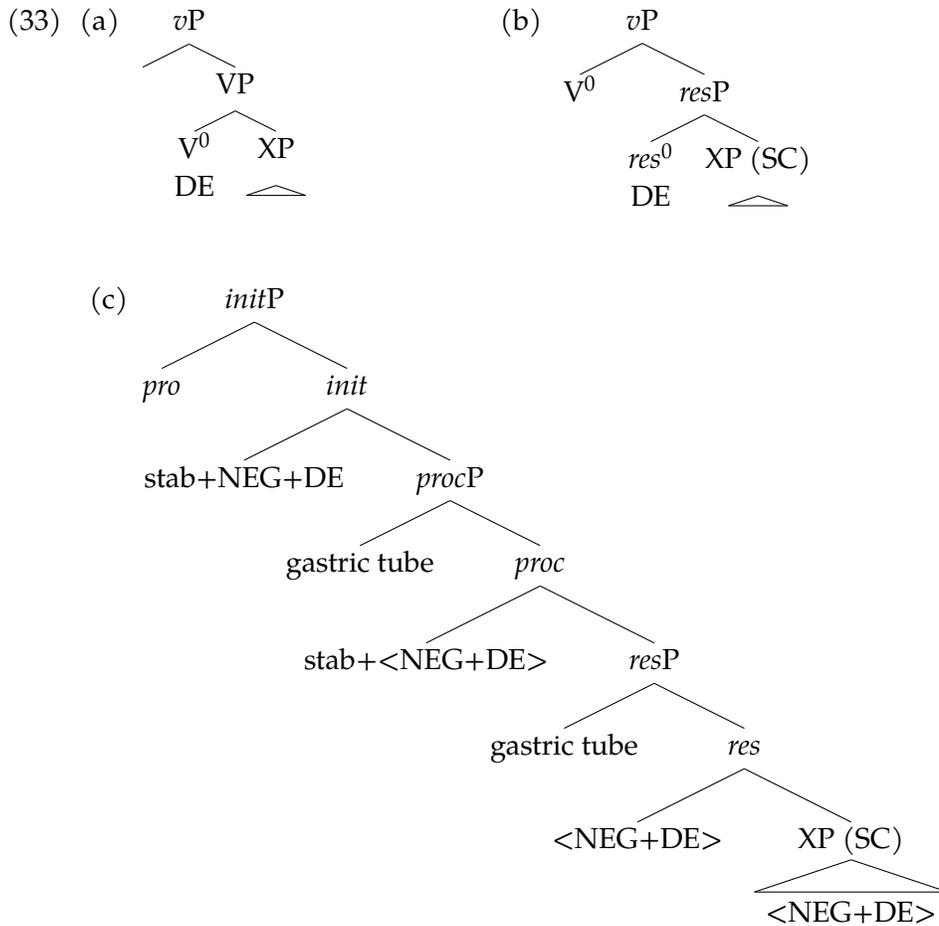
Another verb which can express result, i.e., the successful achievement of the situation expressed by the preceding VP, is the verb *dé* 得 ‘get, obtain, manage to’, which grammaticalizes into a preverbal possibility modal and a postverbal marker of potential and possibility in Modern Mandarin from a marker of resultativity (Meisterernst 2020a). The latter development is relevant in the present context. Meisterernst (2020a) propose a grammaticalization of the lexical (dynamic) DE into a resultative V_2 in Early Mandarin, heading a small clause, i.e. a functional category in *resP* (Ramchand 2008), expressing result and realization. This analysis follows Cheng & Sybesma’s (2004) analysis of Cantonese DAK. The grammaticalization process starts in EMC with only a few examples in which *dé* seems to express result as in (32). The verbs preceding *dé* are [*init*, *proc*] verbs, which originally do not include a *res* head. (32 a) shows *dé* as a lexical verb in LAC; in (32 b) *dé* follows the verb *xué* 學 ‘learn’ in an unaccusative construction; in this construction the [*init*, *proc*] verb only has an UNDERGOER argument; the verb *dé* adds a resultee and changes the structure into UNDERGOER₁-RESULTEE₁. In (32 c), *dé* follows the verb *shè* 射 ‘shoot’, a *qusheng* verb. According to Cao (1999), structures with *dé* in (32 c) are the basis for the new resultative constructions with an intransi-

tive V_2 , in which V_1 and V_2 do not constitute an object sharing construction any more. They contrast with the verbs in (28), (29), which share their object. It seems that *dé* already had weakened semantically in (32c), since it only refers to the successful result of the shooting event, in which the arrow reached the sun, but the initiator did not get into possession of it; the structure is INITIATOR-UNDERGOER₁-RESULTEE₁. The same analysis can account for the negated achievement of the event expressed by V_1 in (32d). In this example, *dé* follows the verb *cì* 刺 ‘stab (at)’, briefly discussed in ex. (29); the result expressed by *dé* is negated, the negator *bù* immediately precedes *dé* V_1 NEG DE DP.

- (32) (a) 其後亡也，成子得政。 (Zuozhuan, Zhuang 22, LAC)
Qí hòu wáng yě Chéngzǐ dé zhèng
 GEN after perish SFP Chengzi receive government
 ‘After it perished, Chengzi received the government.’
- (b) 若道術不可學得，則變易形貌， (Baopuzi, Neipian Duisu 3, MC)
Ruò dào shù bù kě xué dé zé biànyì xíngmào
 If Dao art NEG can learn get then change appearance
 ‘If the magic art of the Dao cannot be learned, then one changes the appearance ...’
- (c) 堯射得之，猶不能傷日
Yáo shè dé zhī yóu bù néng shāng rì
 Yao shoot get 3OBJ but NEG can hurt sun
 ‘Yao shot and hit it, but he could not hurt the sun.’
 (Lunheng 19.1.4, EMC; cf. Cao 1999: 21)
- (d) 「刺不得胃管，誤中肝也， (Sanguo zhi 29:799, MC)
cì bù dé wèiguǎn wù zhòng gān yě
 stab NEG DE gastric.tube mistakenly hit liver SFP
 ‘He unsuccessfully [tried to] pierce/d the gastric tube, but mistakenly hit the liver.’

A preliminary and simplified analysis of the grammaticalization process of *dé* can be seen in (33). (33a) shows the lexical verb *dé* 得 as an achievement verb with the meaning ‘get, obtain’; this is its regular function in LAC (Meisterernst 2020a). (33b) shows the eventual grammaticalization of *dé* into an overt *res* head probably in Late Middle Chinese (Meisterernst ms). The same analysis also seems to be possible for the examples (32b,c). Example (32c) seems to be structurally similar to the examples in (28) and (29) in which the internal argument follows V_2 . In this respect, *dé* is different from the resultative marker *yǐ* discussed in ex. (30), which follows the internal argument

if present. However, the fact that *dé* can be preceded by NEG distinguishes it from the structure in (28) and (29) and at this stage of research we take this as an argument against an analysis of *dé* as part of a *proc-res-* compound identical to what we can see in (28) and (29).³⁹ Thus in (33c), we tentatively propose that *dé* actually heads a small clause in the complement of *res*; the subject of the small clause is the theme argument of *dé*. *Dé* moves up via head movement through *res* to join the lexical verb in *proc* and to move up further to the position of *init*, carrying NEG along. The position of NEG follows the rule proposed in Meisterernst (2020a) that NEG always has to attach to a defective verbal head as long as its verbal origin is still transparent.



³⁹ One of the reviewers proposed that since the negator *bù* is an adjunct at that time, it could freely adjoin to *res*. However, since *res* is part of the internal semantic structure of a verb, it seems doubtful that parts of this structure can be negated individually. The internal constraints on the realization of the subevents within the First Phase in Archaic and Middle Chinese still require more research. We postpone this question to future research.

In this section, we very briefly introduced two major diachronic changes in the syntax of Chinese, which coincide with the loss of transparency of the former verbal morphology. We propose that it was this loss which triggered the changes in the verbal system of Chinese. The two major changes we discussed are the disyllabification process of *qusheng* verbs, for which we proposed an overt *res*-head marked by the suffix **-s*, on the one hand, and the development of two different resultative structures. In the disyllabification process of verbs which starts at the end of the LAC period, monosyllabic *qusheng* verbs with an internal (INITIATOR-)UNDERGOER-RESULTEE structure became disyllabic verbs, in which either the *proc* or the *res* head was realized by an additional content morpheme in a compound with two verbal roots. We propose that this was triggered by the loss of transparency of **-s*, the function of which was still largely transparent in LAC. With the increasing opacity of the verbal morphology, the overt marking of the different components of the event structure of verbs gradually also affected non-*qusheng* verbs, i.e. all kinds of verbs, by way of analogy. We also attribute the development of the two new resultative structures, the source structure of the Modern Mandarin perfective suffix *le* 了, $V_1 + (NP) + V_{2\text{finished}}$, and the resultative structure with postverbal *dé* 得, $V_1 + DE$, to the loss of a former derivational marking of the resultative, i.e. the loss of the **-s* suffix. If this suffix really functioned as a *res*-head as we propose in the present discussion, it would have sufficed as a marker for a completed event. This can be seen in unaccusatives, but also in transitive constructions, in which all three subevents are interpreted as overlapping and in which only one tense specification is available.

5 CONCLUSION

In this preliminary study of the **-s* suffix in Archaic Chinese we proposed that the basic function of the suffix is the overt morphological realization of a *res* head, following Ramchand's First Phase Syntax. This does not only account for intransitive/unaccusative verbs, but also for a number of transitive/causative verbs. Two of the three diagnostics proposed in Ramchand (2008) for the identification of a *res* head accounted directly for the *qusheng* verbs discussed in this paper. The third diagnostic, the incompatibility constraint of *for*-adverbials with *res*-verbs, does not account for Chinese, since this constraint does not exist for Chinese, which allows durational adverbials with achievement verbs, i.e. with verbs which do not include a process part in their temporal structure, expressing resultant state duration. Instead of arguing against a *res* head, resultant state adverbials actually argue for the presence of a *res* head in qualifying the duration of a state resulting from a preceding event. Additionally, we proposed that the emergence of disyll-

labification processes and the development of new resultative constructions in EMC can be attributed to the increasing opacity of the suffix *-s as overt realization of a *res* head. The present discussion requires more empirical research in order to support the unified proposal of *-s as an overtly marked *res* head in both intransitive/unaccusative and transitive/causative verbs in contrast to the two major functions proposed previously, i.e. a valency-increasing and a valency-decreasing function. This unified account would also provide a straightforward explanation for the emergence of disyllabic verbs with two morphemes, overtly expressing *proc* and *res*, and for the newly grammaticalized forms expressing resultativity.

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The loss of morphology and the emergence of analytic structures in Chinese

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