Periphrastic perfects in Greek and Sanskrit as a window into Agreement and Spell Out domains

Background Alternations between synthetic and periphrastic word forms have been argued to arise from the interaction of movement (Embick 2000), Agreement (Bjorkman 2011), or phase domains (Fenger 2020) with Spell Out and postsyntactic linearization. This paper discusses periphrastic perfects in Classical Greek (CG) and Classical Sanskrit (CS) and argues that the variation in the locus of expression of Voice and aspectual features in these languages shows the need for further parametrization of movement and Agreement in interaction with phasal Spell Out.

Core data CG and CS both have periphrastic perfect constructions (PPC), but differ w.r.t. the realization of the morphosyntactic features involved. In CG, **verbal stem-forming/aspectual morphology** and Voice [ACT/MID] (Voice[±ext.arg.]) are realized on a participial form together with the root, while higher Tense and Mood features are spelled out on a BE-auxiliary with default active inflection, (1). The only exception is the future perfect, in which the auxiliary is middle (not in (1); will be treated in the talk).

(1) PPCs in CG, perf. = marked by **reduplication**; ptcp.act/mid. = underlined

	Ptcp.act.m.sg.	Ptcp.mid.m.sg.	Aux.act. BE	Base *lū́ō* 'I release'
a. Pf.act.	**le-luk-**ṓ-s		eimi	'I have released'
b. Pf.pass.		**le-lu-**mén-os	eimí	'I have been released'
c. Plupf.act.	**le-luk-**ṑ-s		ẽn	'I had released'
d. Plupf.pass.		**le-lu-**mén-os	ẽn	'I had been released'
e. Pf.act.subj.	**le-luk-**ṑ-s		õ	'I shall release'
f. Pf.pass.subj.		**le-lu-**mén-os	õ	'I shall be released'

These constructions always occur in the perfect and hence instantiate a version of the **additive pattern** of Bjorkman (2011). In the CS PPC, on the other hand, only *verbal stem-forming morphology* is realized on a voice-neutral verbal noun (VN) together with the root, while Voice[ACT/MID] is realized on a DO-auxiliary together with Asp[PERF] (marked by **reduplication** like in CG) and T/Agr features, (2). Verbs that inflect with middle morphology only, like certain denominal verbs, (2c), and underived deponents, (2d), also realize Voice on the auxiliary.

(2) PPCs in CS, red. perf. = **bold**; VN suffix = underlined, *v*-morphology = *italics*

	√/base	Verbal noun	Aux.act.DO	Aux.mid.DO	Meaning
a. Desid.	han	*ji*-ghāṃ-*s*-ā́m	**ca-kār**-a		'has wanted to kill'
b. Caus.	budh	bodh-*ay*-ā́m	**ca-kār**-a		'has caused to wake up'
c. Denom.	mantra-	-mantra-*y*-ā́m		**ca-kr**-e	'has addressed'
d. Dep.	idh	i<*n*>dh-ā́m		**ca-kr**-e	'has ignited'

CS also has a synthetic perfect which competes with the PPC. The PPC only occurs when Asp[PERF] combines with derived verb stems (e.g., causative, denominal):

CS synthetic perf.act.	CS synthetic caus.act	CS perf.caus.act (= PPC)
***bu-bodh**-a*	*bodh-**aya**-ti*	*bodh-**ay**-ām* ***ca-kār**-a*
PF_{RED}-√-3SG.PF.ACT	√-CAUS-3SG.PRS.ACT	√-CAUS-VN PF_{RED}-√-3SG.PF.ACT

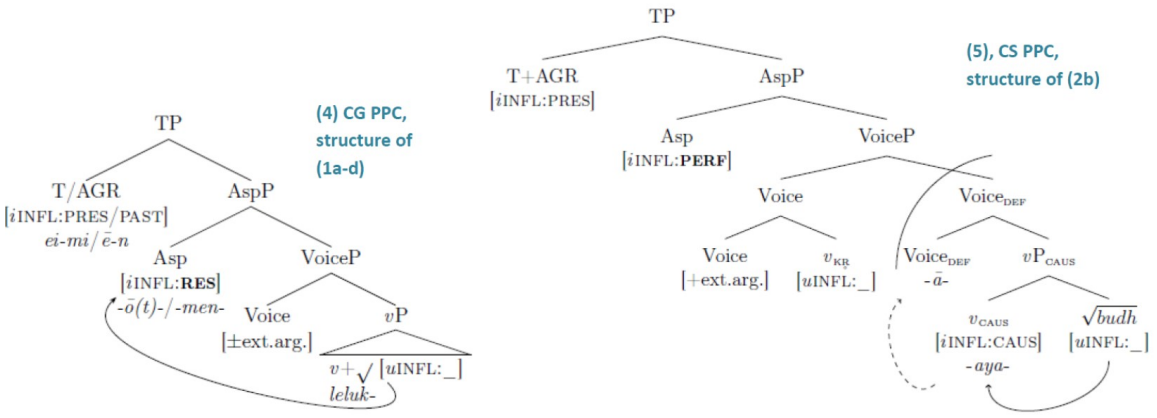
This "**overflow pattern**" (Bjorkman 2011) suggests that PERF and marked *v*, e.g., CAUS, cannot co-occur on a synthetic verb form (NB there are also phonotactic restrictions).

Analysis I assume that participial morphology is the realization of Asp which has not moved to T (Embick 2000) and that synthetic verb forms arise through Upwards Agreement and movement (e.g., Bjorkman 2011, Wurmbrand & Shimamura 2017). Auxiliaries are inserted to realize features that are "stranded" when *marked* morphosyntactic features

block movement, resulting in Spell Out of participial or other non-finite forms (Embick 2000, Bjorkman 2011). In CG, the relevant marked feature is resultative Asp[RES], which blocks movement to higher projections, resulting in a PPC, cf. (4). Higher functional features (Tense, Mood, Agr) are thus always realized on the auxiliary (as a span, Schreiner 2021, or via covert movement, Fenger 2020). The proposed realizations of Asp in CG are given in (3) (excluding the non-perfect ptcp. suffix *-nt-*). Asp[RES] is realized with the active perf. participial suffix in the context Voice[+ext.arg], (3a). When there is no [RES] feature and head movement takes place, Asp is realized as Ø in the resulting synthetic form, (3b). (3c) is not specified for [RES] because this participial allomorph also occurs in the present and aorist in contexts without T (e.g., participial adjuncts), unlike (3a), which is restricted to the perfect. That is, only [RES] blocks movement to T.

(3) a. Asp[RES] ↔ *-ot-*/*-os-* /v/Voice[+ext.arg.]⌢_
b. Asp ↔ Ø/_⌢T
c. Asp ↔ *-men-* /Voice[-ext.arg.]⌢_

In CS, the marked feature on Asp is [PERF]. However, unlike in CG this feature does not automatically trigger a PPC, since perfects are normally synthetic in CS. This suggests that [PERF] blocks movement, but Agreement with T/AGR is still possible, resulting in a synthetic form. The PPC only occurs when a lower marked head blocks movement, in which case marked Asp[PERF] is expected to act as an intervenor for Agreement (Bjorkmann 2011). However, this wrongly predicts Voice and Asp to be spelled out on the non-finite form. I therefore argue that there is an additional phase head in the CS PPC that triggers Spell Out, namely a default Voice head along the lines of, e.g., Wurmbrand 2015, Wurmbrand & Shimamura 2017. This results in the Spell Out of a Voice-neutral form after movement of the root to v and agreement with the default Voice head, (5). To "rescue" the stranded features of Voice-Asp-T/Agr, a light verb DO ($\sqrt{kr}$) is inserted (because of an adjacency requirement on v-Voice, cf. DO-support in English) whose [uINFL_] feature can agree with Asp and (after movement to Asp) with T/Agr. Crucially, the fact that perfect reduplication is realized on the non-finite element in CG, but on the finite auxiliary in CS shows that movement to Asp takes place in the CG PPC, but not in the CS one.



This analysis derives both the synthetic and the analytic forms in CG and CS and also predicts the distribution of participles in non-finite (non-PPC) contexts, which previous literature has neglected. CS crucially shows that synthetic valency changing morphology is able to participate in periphrasis under certain circumstances, *pace* Fenger 2020.

Selected refs.: **Bjorkman**, B. 2011. BE-ing Default: The Morphosyntax of Auxiliaries. PhD thesis, MIT. **Embick**, D. 2000. Features, syntax, and categories in the Latin perfect. *LI* 31(2):185–230. **Fenger**, P. 2020. Words within Words: The Internal Syntax of Verbs. PhD thesis, UConn. **Schreiner**, S. 2021. Span–conditioned allomorphy and late linearization: Evidence from the CG perfect. *Glossa* 6(1):64.