Localizing Voice in bivalent voice systems: passive and middle in Sanskrit and Greek

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Introduction: Bivalent voice systems like those of Classical Greek (CG) and Vedic Sanskrit (VS) distinguish between active and non-active voice in their agreement morphology. Non-active morphology cross-linguistically occurs in the same environments: 1) anticausatives, 2) reflexives/reciprocals, 3) dispositional/generic middles, 4) mediopassives, 5) passives. Alexiadou & Doron (2012) argue that in bivalent systems, a voice head μ (middle) is merged in these environments. In trivalent voice systems, the first four functions take the μ head, while the passive arises through merger of a separate head π. In their account, μ and π are in complementary distribution and merge below the agent-introducing projection vP. I argue that VS and CG provide evidence that μ and π merge in different structural positions and only one of them, π, affects valency.

Background: In VS and CG, Voice and Tense together are morphologically expressed through different sets of verbal agreement markers:

	3sg.nonpast.act.	3sg.nonpast.mid.	3sg.past.act.	3sg.past.mid.
VS	*-t-i*	*-t-e*	*-t-Ø*	*-t-a*
CG	*-t/s/e-i*	*-t-a-i*	*-Ø*	*-t-o*

Both VS and CG have a basically bivalent voice system in which the non-active voice can have a (medio)passive reading. In bivalent environments, the passive is morphologically indistinguishable from other functions associated with non-active agreement morphology. However, in some tense/aspect stems, separate morphology is available for the passive, creating a trivalent system. In VS, a passive can be formed in the imperfective stem by adding the suffix *-yá-*. In CG, the passive suffix *-thē-* is available in the aorist and the future. In these tense/aspect stems, the passive interpretation of the middle is blocked. Ex. (1) illustrates this for VS (C indicates the class/theme vowel).

(1) a. *bhár-a-ti* — carry-C-3SG.NONPAST.ACT — "carries sth."
b. *bhár-a-te* — carry-C-3SG.NONPAST.MID — "carries sth. for oneself/*is being carried"
c. *bhri-yá-te* — carry-PASS-3SG.NONPAST.MID — "is being carried"

(1) c. is an agentive passive in which passive and middle morphology descriptively co-occur. Evidence that it is the suffix *-yá-* that passivizes and not the middle morphology comes from deponents, verbs that always take the middle endings, but are syntactically active and transitive. Agentive deponents in VS can passivize using the suffix *-yá-*. Both the syntactically active deponent and its corresponding passive take the middle endings.

(2) a. *ī́ṭ-ṭe* "praises" — *īḍ-yá-te* "is being praised"
b. *rábha-te* "seizes" — *rabh-yá-te* "is being seized"

Analysis: The co-occurrence of passive and middle morphology in (1) c. suggests that the passive and middle voice heads occupy different structural positions. I argue that the passive head π merges below vP at the same level as other stem-forming suffixes, while the middle voice head Voice merges above vP *iff* v does not introduce an agent argument (in the spirit of Embick (1998)'s rule for the assignment of non-active voice: V → V-VOC[NonAct]/_ No

external DP, "Non-active voice is assigned when v does not introduce an external argument"). If vP introduces an agent, no Voice head is merged and active morphology emerges by default (Alexiadou & Doron 2012). I assume that Voice carries an interpretable feature [NonAct] which values the uninterpretable Voice feature on the verb (following Bjorkman 2011). In a VS imperfective passive, π is merged low and prevents the merger of an external argument in the specifier of v. Voice is therefore merged, resulting in non-active morphology through agreement with the verb, as in (3).

(3) pres.pass. bhri-ya-te "is being carried"
$[_{TP}\ \mathrm{T}_{NONPAST}\ [_{Voice}\ \mathrm{Voice}_{NONACT}\ [_{vP}\ \emptyset\ [_{\pi P}\ \textit{-yá-}_{\pi}\ [_{RootP}\ \sqrt{bhr}_{\circ[uINFL\_]}\ ]\ ]\ ]\ ]\ ]$

More evidence for low π vs high Voice comes from the fact that Vedic has an unaccented suffix *-ya-* besides passivizing *-yá-* that acts like a stem-forming or "verbalizing" suffix (cp. Harley 2009). These can form minimal pairs such as *múc-ya-te* "escapes" — *muc-yá-te* "is released"; *kṣī́-ya-te* "perishes" — *kṣī-yá-te* "is destroyed". Co-occurence of both suffixes is not possible (**-ya-yá-*), indicating that they occupy the same stuctural position. Middle morphology is derived by the same mechanism in both cases: Voice_{NONACT} is merged because v does not introduce an external argument, in the case of *kṣī́yate* "perishes" because this is an unaccusative verb that does not have an external argument, in the case of *kṣīyáte* "is destroyed" because the passive suppresses the merger of the external argument in the specifier of vP. If passive and middle/Voice are not in complementary distribution and active is simply the absence of middle/Voice we furthermore predict that under certain circumstances, passive and active morphology can co-occur. This is the case in CG. While the future passive behaves like the VS imperfective passive (passive and middle morphology co-occur), in the aorist passive we find the passive suffix *-thē-* combining with the *active* endings, cp. the underlined endings:

	3sg.act.	3sg.mid.	3sg.pass.
fut.	lou-se-i "will wash"	lou-se-<u>tai</u> "will wash herself"	lou-thē-se-<u>tai</u> "will be washed"
aor.	e-lou-se-<u>Ø</u> "washed"	e-lou-sa-to "washed herself"	**e-lou-thē-<u>Ø</u>** "was washed"

This suggests that *-thē-* cannot be selected by Voice, and active morphology surfaces by default:

(4) *e-lou-thē-Ø*: $[_{TP+AGR}\ \mathrm{T}_{NONPAST}\ ([_{vP})\ [_{\pi P}\ \textit{-thē-}_{\pi}\ [_{RootP}\ \sqrt{lou}_{[uINFL]}\ ]\ ]\ ]\ ]$

The future marker *-se-* on the other hand can be selected by Voice, as a result of which the future passive surfaces with middle endings.

Implications: Structurally separating the passive from the middle captures the intuition that they are functionally different: The passive is usually said to affect valency by absorbing the external argument, whereas middle morphology is not valency-reducing, but emerges as the result of previous syntactic operations. Reducing the Voice head to μ/middle means that no special rules are needed to predict active morphology, which emerges in the absence of the Voice head. Strictly bivalent voice systems may lack a passive head entirely and use only Voice/μ (cp. Alexiadou & Doron for Modern Greek).

References: **Alexiadou**, Artemis, and Edit **Doron**. 2012. The syntactic construction of two non-active Voices: Passive and middle. *Journal of Linguistics* 48: 1-34. **Bjorkman**, Bronwyn. 2011. *BE-ing default: The morphosyntax of auxiliaries*. Ph.D. dissertation, MIT. **Embick**, David. 1998. Voice systems and the syntax/morphology interface. In *Papers from the Penn/MIT Roundtable on Argument Structure and Aspect*, May 1997 (MITWPL). **Harley**, Heidi. 2009. The morphology of nominalizations and the syntax of vP. In *Quantification, definiteness and nominalization*, 320-42. OUP.