

Passives, Raising, and the Experiencer Externalization Hypothesis

Overview: The work we present here is not experimental but theoretical. The goal is to find a unified explanation for a set of four prior findings which, taken together, constitute a puzzle for existing theories of children's difficulties with passives. Our proposal (in 1) is that the difficulties for five-year-olds are due, *not* to problems with A-movement *per se* (as in Borer & Wexler 1987, *et seq.*), nor to A-movement across an intervener (as in Snyder & Hyams 2015, *inter alia*), but rather to the verb's outermost argument being an Experiencer.

Four Findings: (i) Orfitelli (2012) examined English-speaking five-year-olds' comprehension of non-actional passives and of raising-past-experiencer (RPE) with *seem*. She found a perfect by-participant correspondence in success/failure on the two structures. (ii) Perovic & Wexler (2010) reported that individuals with Williams Syndrome still have comprehension deficits for non-actional passives and RPE as adolescents. (iii) Yet, Nguyen (2021) showed that the English verbs that children still cannot passivize as five-year-olds are *not* (as previously believed) the non-actional verbs in general, but Subject-Experiencer (SE) verbs in particular (e.g., *remember*, *love*). In contrast, four-year-olds can already passivize Object Experiencer verbs (*surprise*, *frighten*), even in contexts making them unambiguously non-actional. (Note: Nguyen's findings for SE passives call into question Orfitelli's and Perovic & Wexler's reports that difficulties were with "non-actional passives" (i.e., in general), and examination of their materials reveals they only tested SE passives.) (iv) Finally, Hancock et al. (2023) examined brain activity in English-speaking *adults* as they processed sentences with active- or passive-voice uses of either SE or Agent-Patient verbs. They found that SE passives (alone) strongly activated an area of ventromedial prefrontal cortex (vmPFC) that is distant from canonical language areas, implicated (by prior studies) in Theory-of-Mind tasks, and still undergoing development in five-year-olds.

Analysis: In contrast to past proposals, the problem cannot be A-movement in general, nor A-movement across an intervener, although the evidence from fMRI and Williams Syndrome does implicate neurodevelopmental changes (as in Borer & Wexler). We propose that Experiencers are the problem. Natural languages assign Experiencers a locative syntax (Landau 2010), making them VP-internal (2a). The structures giving children problems, we propose, are those in which an Experiencer must become an external argument: Adults can perform tacit 'semantic coercion' to convert 'Experiencer' into the external role of 'Possessor' (i.e., of a "mental object"), as in (2b). Yet, semantic coercion relies on late-developing vmPFC. Much the same problem arises in RPE. Following Collins (2005), in (3b) the Experiencer must be coerced into a Possessor (i.e., of the informational content of the lower clause) in order to be projected *outside* the VP, in an Applicative Phrase. Only then can the (now-empty) VP be used to "smuggle" the subject past it.

(1) *Experiencer Externalization Hypothesis*

Until the age of about five to six years, children will struggle with any structure requiring them to "externalize" an Experiencer argument (i.e., to construe an Experiencer as the external argument of a verb).

(2) *Analysis of Subject Experiencer (SE) verbs:*

- a. **Active (no coercion):** [_{DP} The students] [_v [_{V_{LOC}} [_{VP} t_{DP} love [_{DP} the teacher]]]]
b. **Active (after coercion):** [_{DP} The students] [_v t_{DP} [_{V_{POSS}} [_{VP} love [_{DP} the teacher]]]]
c. **Passive:** [_{DP} The teacher] is [_{voiceP} [_{VP} loved t_{DP}] by [_{VP} [_{DP} the students] v [_{t_{VP}}]]]

[In 2a, the Experiencer [*The students*] is generated VP-internally, where it is construed as being located adjacent to a "mental object" of love (towards the teacher); passive is impossible (cf. **The house is been in by Sue*). In 2b, the Experiencer has been coerced into a Possessor (of the same mental object), and as such is projected as a VP-external argument; hence, passivation (3c) is possible (cf. *The house is owned by Sue*).]

(3) *Analysis of Raising Past Experiencer (RPE):*

- a. It [_{VP} seems [_{VP} [_{DP} to-Ernie] t_V [_{CP} that Bert is honest]]].
b. Bert [_{VP} [_{VP} t_{DP} seems t_{TP}] v [_{APPL-P} [_{DP} to-Ernie] APPL [_{XP} [_{TP} t_{DP} to be honest] X [_{t_{VP}}]]]]].

[In 3a, the Experiencer [(*to*)-*Ernie*] is VP-internal. In 3b, it is VP-external, in Specifier of an Applicative Phrase, where it has to be construed as a prospective Possessor of the lower TP's informational content (i.e., that Bert is honest). Projection in Spec,AppIP enables the VP shell to "smuggle" [*Bert*] past it.]

References (and some related works we would be pleased to discuss):

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