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Perspectivization in argument representation for serial verbs in Taiwan Sign Language

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1. Introduction

Taiwan Sign Language (TSL) is the natural language of Taiwan's Deaf community and is used by approximately 100,000 individuals across the country. In 2018, the National Languages Act officially recognized TSL as one of Taiwan's national languages, prompting the government to implement preservation and promotion initiatives aimed at protecting this endangered linguistic system.

This study analyzes the interaction between perspectivization and event representation in TSL, aiming to elucidate how perspective is systematically encoded in the grammar of signed languages. Perspectivization refers to the mental process through which meaning is construed and expressed from a particular point of view, shaped by how a speaker or signer conceptualizes a given situation (Vogels et al. 2023). It is a cognitive process that allows language users to frame events from specific viewpoints, thereby influencing how information is linguistically organized. As Verhagen (2010) notes, perspectivization plays a crucial role in syntax, as it determines how different viewpoints are foregrounded or backgrounded in grammatical structure.

Perspectivization is closely related to syntactic representation and semantic interpretation. For instance, the English preposition “out” may yield contrasting interpretations depending on the observer's vantage point. In general, out encodes a movement from the interior to the exterior of a bounded space. When the observer is positioned outside the container, out is interpreted as appearance, as illustrated in (1a). Conversely, when the observer is located inside the container, it is interpreted as disappearance, as shown in (1b).

- (1) a. The sun came out. (out = appear)
b. The fire went out. (out = disappear)

(Lee 2001)

The present study investigates how perspectivization operates within the visual-gestural modality, forming serial verbs in TSL as the case of analysis. Specifically, the study addresses three research issues. First, it explores how perspectivization is represented through the visual-gestural channel, that is, how signers use manual and nonmanual means to encode viewpoint. Second, it examines how foregrounded and backgrounded nominal arguments—that is, actors and undergoers—are manipulated within serial verb constructions to reflect the signer's perspective. Third, it investigates how syntactic structure and referential loci are organized in signing space so as to conform to the perspective taken. This study adopts Role and Reference Grammar (RRG) (Van Valin, 2005) as a research framework to explore how macrorole arguments are manipulated and linked to syntactic representation, as well as what constructional schemas are involved in accounting for perspective manipulation of verbs.

2. Strategies for perspectivization

Perspectivization influences argument alternation by determining how participants are foregrounded or backgrounded in syntactic representation (Verhagen 2010). In sign languages, perspectivization is typically realized through role shift (Padden 1986), a discourse-level strategy that extends across utterances and functions similarly to direct quotation in spoken languages. However, this study shows that perspectivization may also occur within a single clause, expressed through specific manual and nonmanual manipulations. This study found that, in TSL, three strategies are commonly employed to represent different perspectives: (1) the selection of proform, (2) the adoption of constructed action, and (3) the implementation of role shift.

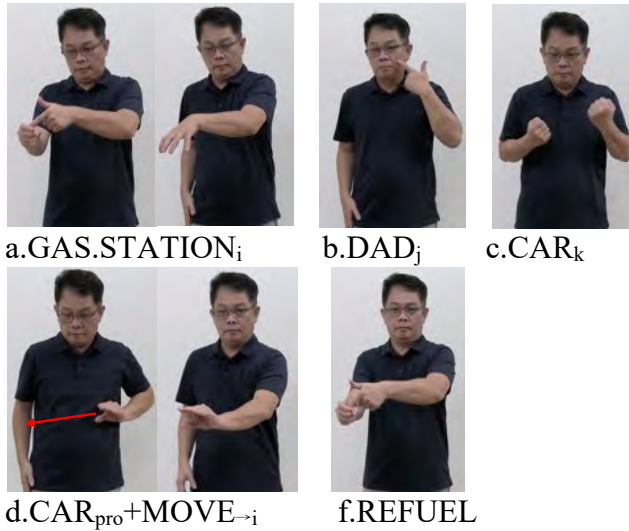
2.1. The selection of proform

This study adopts the term “proform” (Chang et al. 2005, Lin and Chang 2021) to reinterpret the so-called “classifier” morpheme, viewing it as a superordinate form that serves referential and anaphoric functions in syntax and discourse. In sign languages, proforms are manually articulated representations that can be manipulated through different handshapes to refer to previously mentioned participants or entities. They typically co-occur with verb predicates, depicting the spatial and semantic relations among participants within an event. Sutton-Spence and Woll (1999) identified four major types of proforms in sign languages: (1) semantic proforms, which handshapes correspond to the general shape of referent classes; (2) handling proforms, which depict the configuration of the hand as it moves or manipulates an object; (3) size-and-shape proforms, which trace the contours of objects; and (4) body-part proforms, which represent body parts of humans or other animate entities. Building on this typology, Benedicto and Brentari (2004) further demonstrated that handling and body-part proforms are typically employed to foreground the actor (i.e., the agent), whereas semantic and size-and-shape proforms tend to background the actor, thereby reflecting the signer’s perspectivization strategy.

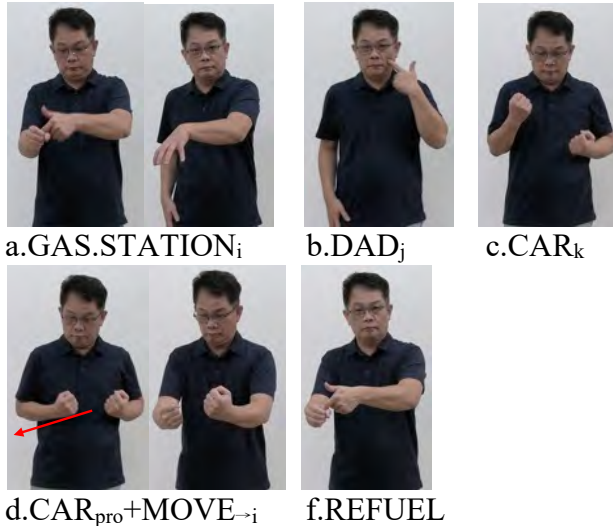
Sentences (2) and (3) describe the same event via serial verb constructions. As in (2), at the beginning of the sentence, the goal and the two NP arguments are first expressed. The signer then selected a handshape functioning as a semantic proform referring to the NP argument CAR, as shown in (2d). This proform was incorporated into the verb MOVE, which moved from the left side of the signer, associated with Dad, to the right locus, associated with the gas station. In contrast, the signer selected a handshape functioning as a handling proform referring to the same NP argument CAR, as shown in (3d). This handling proform adopts the handshape associated with the referent and was used to articulate the verb MOVE, depicting a left-to-right movement that simultaneously foregrounds the actor’s involvement in the event.

- (2) GAS.STATION_i DAD_j CAR_k CAR_{pro}+MOVE_{→i} REFUEL.¹
‘Dad drove to the gas station to refuel.’

¹The abbreviation *pro* stands for proform. The abbreviation *pro* stands for proform. The subscripts *i*, *j*, and *k* indicate referential relations, whereas the subscript arrow denotes the movement of the verb.



- (3) GAS.STATION_i DAD_j CAR_k CAR_{pro}+MOVE_{→i} REFUEL.
 ‘Dad drove to the gas station to refuel.’



In (2), a semantic proform is used to represent the movement of the car, whereas in (3), a handling proform is employed to foreground the actor.

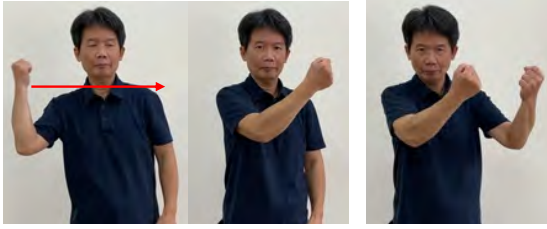
Sentences (4) and (5) illustrate the contrast between a default sentence and one that foregrounds the undergoer. In (4), the two NP arguments are expressed on the left and right sides of the signing space, respectively, thereby establishing two referential loci. The NP argument WINDOW is represented as a semantic proform at the left locus, while the verb HIT is articulated as a movement from the right locus toward this proform, indicating that the person hits the window, as shown in (4c). The second verb BREAK is then articulated at the same left-side locus associated with the NP argument WINDOW, depicting the window being broken as in (4d). In contrast, the sentence in (5) employs a semantic proform to foreground the undergoer’s change of state. The NP argument WINDOW is represented as a semantic proform at the left locus, and the verb HIT moves from the right locus toward this proform, indicating that the person hits the window. The proform then remains at the locus to depict the window’s state change, from cracked to shattered on the ground.

- (4) WINDOW_i HE_j HIT_{j→i} BREAK.
 ‘He broke the window.’



a. WINDOW_i

b. HE_j



c. HIT_{j→i}

d. BREAK

- (5) WINDOW_i HE_j WINDOW_{pro}+HIT_{j→i}.
 WINDOW_{pro}+CRACK WINDOW_{pro}+BREAK WINDOW_{pro}+SHATTER.
 ‘He hit the window. As a result, it cracked and then broke and shattered.’



a. WINDOW_i

b. HE_j

c. WINDOW_{pro}+HIT_{j→i}.



d. WINDOW_{pro}+CRACK e. WINDOW_{pro}+BREAK. f. WINDOW_{pro}+SHATTER

With respect to constructional schemas involving the use of proforms, when a proform is employed to foreground a macrorole argument—either the actor or the undergoer—the relevant constructional patterns can be represented as in (6). The privileged syntactic argument (PSA) tends to occur immediately before the first verb. Actor foregrounding is typically implemented in the first verb, where the signer manipulates an appropriate proform to represent the actor. In contrast, undergoer foregrounding is generally realized in the subsequent verbs within a serial verb construction, highlighting the undergoer’s change of state or degree of affectedness.

- (6) Constructional schema of applying proform
 NP+PSA+[V1]_{actor}+ [V2]

NP+PSA+[V1] +[V2]_{undergoer}
 NP+PSA+[V1]_{actor} +[V2]_{undergoer}

2.2. The adoption of constructed action

Constructed action is defined as a strategy in which the signer enacts a participant involved in an event by depicting the actions, utterances, thoughts, attitudes, or emotions of referents other than the narrator (Lillo-Martin, 2012). Lillo-Martin (2013) introduced the concept of the “point-of-view predicate” in American Sign Language (ASL), a notion closely related to formalist approaches to the representation of utterances, thoughts, and actions. In the present study, it was found that, in motion events, signers often add a manner verb through constructed action to depict how the actor performs the action, thereby enhancing the vividness and embodiment of the event.

The sentence in (7) illustrates a neutral situation without specific perspectivization. The location NP HOUSE is expressed first, followed by two NP arguments, with Mr. Li assigned to the right and Mr. Zhang to the center of the signing space, as shown in (7b) and (7c). Subsequently, the NP argument Mr. Li is represented as a semantic proform incorporated into the verb DRAG. The verb DRAG moves from right to left, indicating that Mr. Zhang drags Mr. Li toward the house. Finally, the verb ENTER is articulated to denote the arrival at the destination.

- (7) HOUSE_i MR.LI_j MR.ZHANG_k MR.LI_{pro}+DRAG_{j→i} ENTER _{→i}
 ‘Mr. Zhang dragged Mr. Li into the house.’



The sentence in (8) conveys the same conceptual content as that in (7). The two sentences differ only in that (8) adopts the perspective of profiling the actor. The signer adds a manner verb through constructed action to depict how Mr. Zhang drags Mr. Li. As a result, the verb is articulated twice: the first verb designates the manner of the action through constructed action that mimics the actor’s manner, as in (8d), while the second verb denotes the event itself, as in (8e). Notably, after constructed action, Mr. Zhang’s facial expression extends across the subsequent verbs, thereby highlighting actor perspectivization.

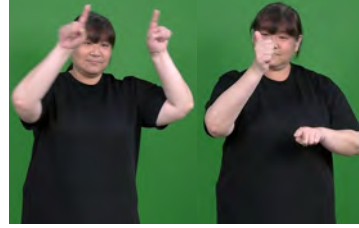
(8) HOUSE_i MR.LI_j MR.ZHANG_k DRAG_{CA-k}
 MR.LI_{pro}+DRAG_{j→i} ENTER_{→i}.²



a.HOUSE_i



b.MR.LI_j



c.MR.ZHANG_k



d. MR.ZHANG.DRAG_{CA}



e.MR.LI_{pro}+DRAG_{j→i}



f.ENTER

The sentence in (9) conveys the same conceptual content as that in (7) and (8). The two sentences differ only in that (9) adopts the perspective of profiling the undergoer. The signer incorporates a manner verb through constructed action to depict how Mr. Li being dragged by Mr. Zhang. As a result, the verb is articulated twice: the first verb designates the manner of the action through constructed action that mimics the undergoer's manner, as in (9d), while the second verb denotes the event itself, as in (9e). Notably, after constructed action, Mr. Li's facial expression extends across the subsequent verbs, thereby highlighting undergoer perspectivization.

(9) HOUSE_i MR.LI_j MR.ZHANG_k DRAG_{CA-j} MR.LI_{pro}+DRAG_{j→i} ENTER_{→i}
 'Mr. Zhang dragged Mr. Li into the house.'



a.HOUSE_i



b.MR.LI_j



c.MR.ZHANG_k

² The abbreviation CA refers to constructed action, and CA-k denotes constructed action adopted from the perspective of referent k.



d. MR.ZHANG.DRAG_{CA}



e. MR.LI_{pro}+DRAG_{j→i}



f. ENTER

As for constructed action, a manner verb being added is analyzed as Verb₁, where the manner verb constitutes a subevent of Verb₂ in a serial verb construction. Consequently, the reversed order of the manner verb and Verb₂ is also found to be grammatical in TSL. Notably, the perspective adopted—whether that of the actor or the undergoer—affects both the form in which the manner is expressed and the extent to which the signer’s facial expression extends across the subsequent verb. The construction schema is summarized in (10). When a manner verb specifies the manner of a certain verb (either V₁ or V₂), it tends to occur in close proximity to the verb it accompanies, either preceding or following it.

(10) Constructional schema of applying constructed action

NP+PSA+[MANNER VERB_{CA}] +[V₁] +[V₂]

NP+PSA+[V₁]+[MANNER VERB_{CA}] +[V₂]

2.3. The implementation of role shift

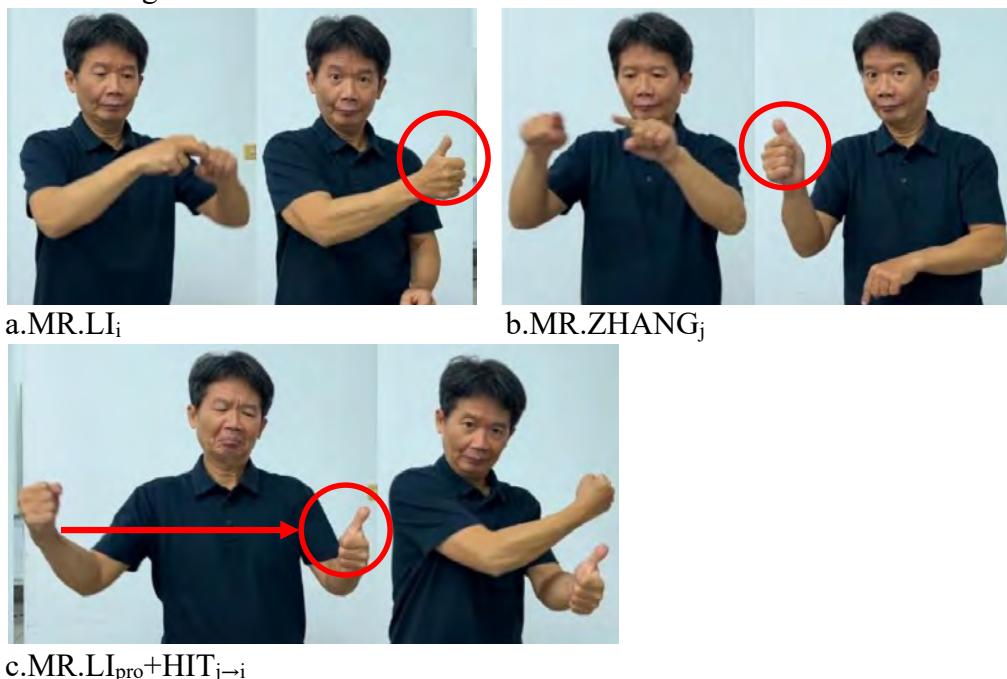
Role shift refers to the transition between narrative perspectives or characters in discourse. It does not depict the action or utterance itself but rather marks the boundary or shift between different represented roles (Quer 2018). Through role shift, the signer adopts the viewpoint of a specific character or participant, typically indicated by changes in body posture, head orientation, or gaze direction. This mechanism allows the signer to alternate between the narrator’s perspective and that of the character being represented.

In contrast, constructed action involves the signer embodying the referent by enacting the actions, expressions, or behaviors of a character or participant. While role shift signals a change in viewpoint, constructed action depicts the event itself. In other words, role shift manages perspective at the discourse level, whereas constructed action represents the manner and dynamics of the event at the clause level. The two phenomena often co-occur, but they differ functionally. Role shift indicates a change between characters or participants, marking a transition in narrative perspective. In contrast, constructed action depicts the referent’s actions, expressions, or behaviors, allowing the signer to physically embody the event being described.

The sentence in (10) illustrates a neutral situation without specific perspectivization. The two NP arguments are established on the left and right sides of the signing space, respectively, thereby creating two referential loci. The NP argument MR.LI is then

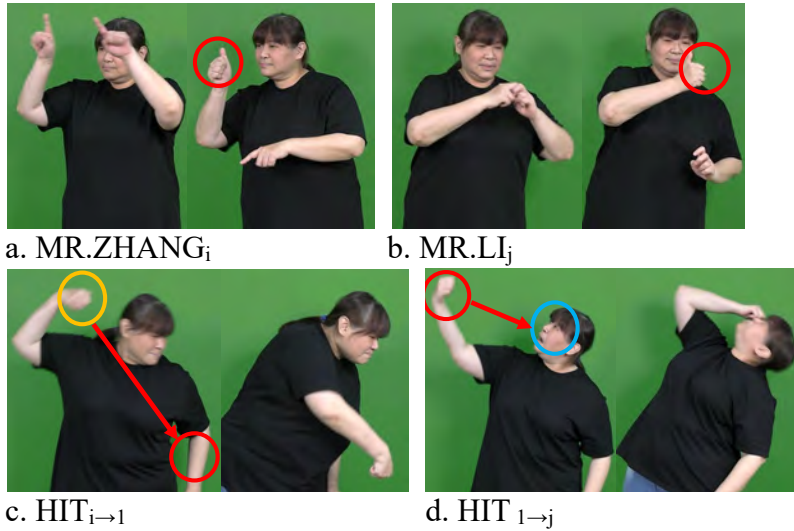
represented as a proform at the left locus, and the verb HIT moves from right to left—that is, toward the locus of the proform—indicating that Mr. Zhang hits Mr. Li. During the articulation of the verbal predicate, the NP argument MR.ZHANG is realized through the referential locus on the right, while Mr. Li is realized through the proform on the left. The grammatical relation between the two arguments is clarified by the movement of the verb HIT, whose starting point corresponds to the subject’s locus and whose endpoint corresponds to the object’s locus, as in (10c).

- (11) MR.LI_i MR.ZHANG_j MR.LI_{pro}+HIT_{j→i}
 ‘Mr. Zhang hit Mr. Li.’



Different from (11), the sentence in (12) implements perspectivization. The two NP arguments are expressed and assigned to the right and left sides of the signing space, as in (12a) and (12b). While producing the verb HIT, the signer sequentially adopts both the actor’s and the undergoer’s perspectives. The verb HIT is expressed twice, and each occurrence is associated with a distinct perspectival manipulation, thereby forming a serial verb construction. The first instance of HIT adopts the actor’s perspective, moving from the signer’s body—representing the first person—toward the left referential locus, and is accompanied by the actor’s facial expression. The second instance adopts the undergoer’s perspective, moving from the right referential locus toward the signer’s body, again representing the first person, and is accompanied by the undergoer’s facial expression. Notably, these two verbs follow an iconic sequence in which the actor’s perspective precedes the undergoer’s; reversing this order would result in ungrammaticality. Further, the ellipsis of one of the verbs, which serves to foreground a particular perspective, is also grammatical in TSL.

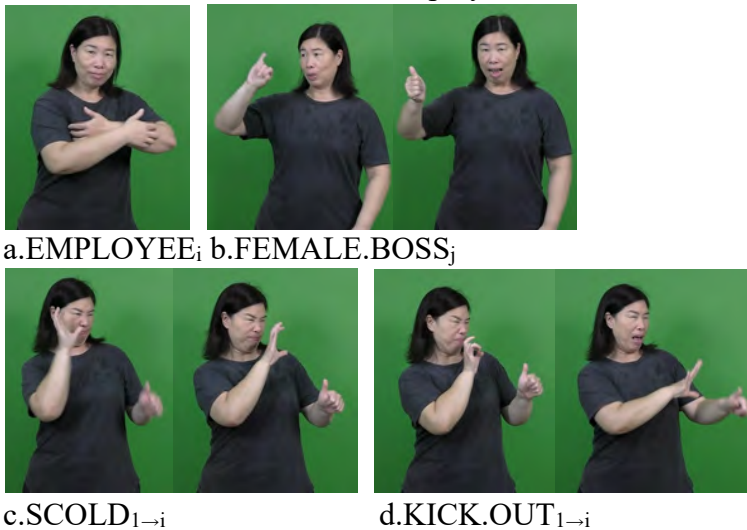
- (12) MR.ZHANG_i MR.LI_j HIT_{i→1} HIT_{1→j}.
 ‘Mr. Zhang hit Mr. Li.’

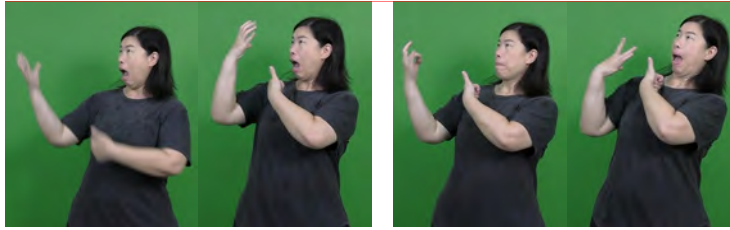


The sentence in (12) demonstrates that a single event can be represented from two distinct perspectives. As a result, two verbs adopting different role shifts are employed, forming a serial verb construction. The following sentence in (13) illustrates a similar condition, conveying the event “The female boss scolded the employee and kicked him out.” At the beginning of the sentence, the two NP arguments are expressed and assigned to the left and right sides of the signing space, respectively. The subsequent verbs SCOLD and KICK.OUT exhibit a causative relationship. Interestingly, these two verbs combine to form a single verbal predicate unit, which is expressed twice—first from the actor’s perspective and then from the undergoer’s perspective. From the actor’s perspective, the movement of both verbs proceeds from the signer toward the left referential locus, representing the female boss’s viewpoint, as shown in (13c) and (13d). From the undergoer’s perspective, the verb moves from the signer toward the right, indicating the employee’s viewpoint, as shown in (13e) and (13f).

(13) EMPLOYEE_i FEMALE.BOSS_j SCOLD_{1→i} KICK.OUT_{1→i} SCOLD_{j→1}
 KICK.OUT_{j→1}

‘The female boss scolded the employee and kicked him out.’





e.SCOLDJ_{j→1}

f.KICK.OUT_{j→1}

As for role shift, both verbs typically adopt the same perspective. When two perspectives are adopted, reduplication of both verbs is required. The perspective shift proceeds from the actor's perspective to the undergoer's perspective; reversing this order results in ungrammaticality. In other words, when employing role shift, the sequence of verbs must follow the temporal and iconic order of the depicted events. Reversing this order disrupts the temporal iconicity and leads to ungrammaticality. The possible constructional schemas are summarized in (14).

(14) Constructional schema of applying role shift

NP+PSA+[V1 +V2]_{actor}

NP+PSA+[V1 +V2]_{undergoer}

NP+PSA+[V1 +V2]_{actor}+ [V1 +V2]_{undergoer}

3. RRG account

In TSL, signers can select appropriate proforms, manipulate the manner associated with a designated NP argument, or shift a particular NP argument through role shift to enact a specific perspective. This study identifies two types of perspective modulation and summarizes the possible manual and nonmanual strategies employed to foreground either the actor, as in (15) or the undergoer, as in (16).

(15) Actor-perspective modulation:

- To select the proform, use a handling or body-part proform.
- To enact the actor, add a verb to depict the manner of the actor.
- To shift into the role of the actor, lean the body toward the actor's locus and gaze toward the locus of the undergoer, accompanied by the actor's nonmanual features.
- To modulate agreement, adjust the path movement of the verb so that it moves from the signer's body to the locus of the undergoer.

(16) Undergoer-perspective modulation:

- To select the proform, use a semantic or size-shape proform.
- To shift into the role of the undergoer, lean the body toward the undergoer's locus and gaze toward the locus of the actor, accompanied by the undergoer's nonmanual features.
- To modulate agreement, adjust the path movement of the verb so that it moves from the locus of the actor to the signer's body.

Based on the discussion above, the constructional templates for perspectivization in TSL are summarized in Table 1. In brief, three strategies—proform selection, constructed action, and role shift—are employed to foreground the actor, the undergoer, or both.

When the actor is foregrounded, V1 or both verbs may undergo actor-perspective modulation. Furthermore, a manner verb may be inserted to surround V1, depicting the actor's manner of action. When the undergoer is foregrounded, V1 or both verbs may undergo undergoer-perspective modulation, and a manner component may be inserted around V2 to express the undergoer's manner or state. Notably, both perspectives can be foregrounded within a single serial-verb construction. In such cases, V1 typically undergoes actor-perspective modulation, whereas V2 undergoes undergoer-perspective modulation. Alternatively, both verbs may be reduplicated, with the first copy showing actor-perspective modulation and the second showing undergoer-perspective modulation.

Table 1. Constructional templates for perspectivization

Foregrounding actor NP+PSA+[V1] _{actor} + V2 NP+PSA+[MANNER VERB] _{CA} +[V1]+[V2] NP+PSA+[V1+V2] _{actor}
Foregrounding undergoer NP+PSA+ V1+[V2] _{undergoer} NP+PSA+[V1]+[MANNER VERB] _{CA} +[V2] NP+PSA+[V1+V2] _{undergoer}
Foregrounding actor and undergoer NP+PSA+[V1] _{actor} + [V2] _{undergoer} NP+PSA+[V1+V2] _{actor} + [V1+V2] _{undergoer}

The linking principles, as proposed in (17), account for how the RP arguments in TSL comparatives are linked to syntactic representation.

(17) The linking principles for TSL serial verbs

Principle A: The actor of V₁ is linked to the PSA position is to be associated with a designated referential locus X.

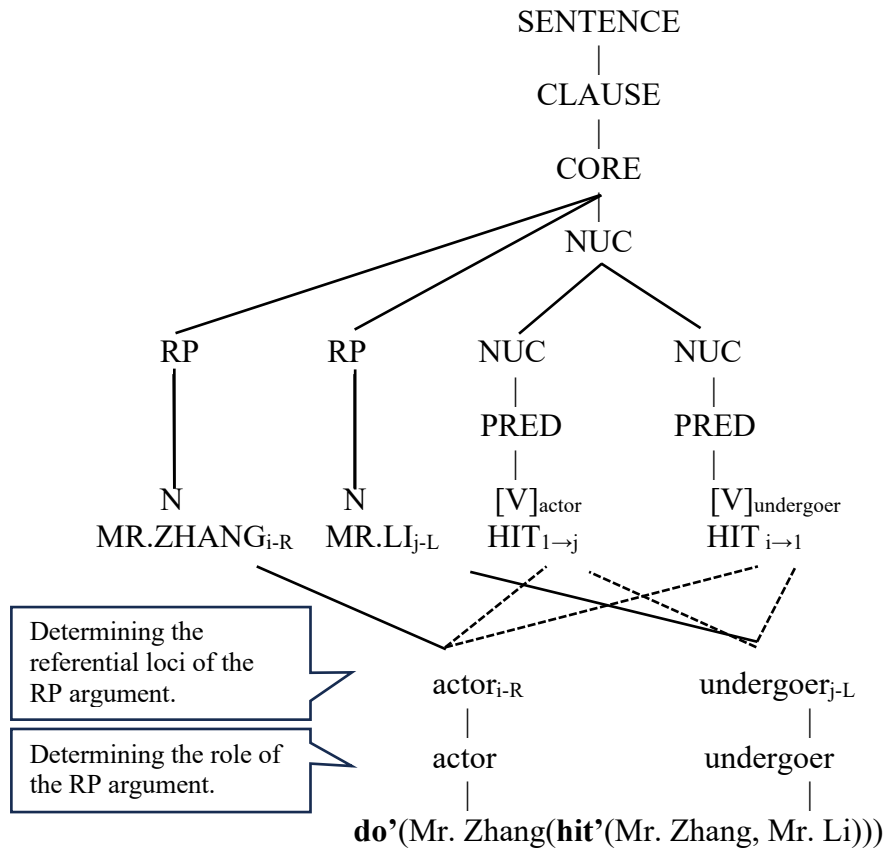
Principle B: The undergoer of V₁ is linked to a non-primary semantic argument (non-PSA) position that is adjacent to the PSA position, and it is associated with a designated referential locus Y.

Principle C: In actor-perspective modulation, the agreement verb moves from the signer body to the referential locus Y. In undergoer-perspective modulation, the agreement verb moves from the signer body to the referential locus X.

Following the Actor–Undergoer Hierarchy, the first argument of V1 (i.e., MR. ZHANG) is selected as the Actor, and the second argument (i.e., MR. LI) as the Undergoer. According to Linking Principle A, the Actor is assigned to a designated referential locus on the right side of the signing space and is linked to the PSA position. The Undergoer, in contrast, is assigned to the left side of the signing space and is linked to the position immediately adjacent to the PSA position.

Furthermore, the first verb HIT undergoes actor-perspective modulation, being articulated with a movement from the signer's body toward the left, as indicated by the dotted arrow in (18). In contrast, the second verb HIT undergoes undergoer-perspective modulation, being articulated with a movement from the right toward the signer's body, as illustrated by the dotted arrow in (18).

- (18) MR.ZHANG_i MR.LI_j HIT_{i→1} HIT_{1→j}.
 ‘Mr. Zhang hit Mr. Li.’



4. Conclusion

The present study demonstrates that perspectivization in TSL operates through visually systematic manipulation of verbal predicates within the visual–gestural modality. Signers encode viewpoint distinctions—such as those of the actor, undergoer, or both—by employing manual and nonmanual strategies that modulate perspective. Three primary strategies were identified: the selection of proforms, the adoption of constructed action, and the implementation of role shift. Each strategy contributes uniquely to argument linking by highlighting or foregrounding macroroles within serial verbs. The analysis further reveals that syntactic structure and referential loci in signing space are organized in accordance with the signer’s chosen perspective, reflecting two macro-level modes of perspectivization modulation. Together, these findings show that perspectivization in TSL is not merely a discourse-pragmatic phenomenon but a grammaticalized mechanism that systematically integrates syntax, spatial organization, and semantic interpretation in the representation of events.

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