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# **Hold + Stroke Gesture Sequences as Cohesion Devices: Examples from Danish Narratives**

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## **1 Introduction**

When speakers tell stories, they often complement their spoken narratives with co-speech gestures. Gesture research has sought to assess the contribution of co-speech gesture to narrative structure on various levels. One topic that has received a relatively great amount of attention is the role of gesture in reference tracking and narrative structure. For example, studies have shown systematic interaction in narrative discourse between referents in speech and gesture location (Smith & Kam, 2012; Gullberg, 2003; Gullberg, 2006; Perniss & Özyürek, 2015; So et al, 2009) between discourse structure and gesture type (Cassell & McNeill, 1991; Levy & McNeill, 1992; Parrill, 2010; Perniss & Özyürek, 2015) and between referent activation status and the type of mapping the speaker uses between articulators and referents in the story (Debreslioska et al, 2013; McNeill, 1992; McNeill, 2005). In this paper, I show examples of complex gesture types involving different kinds of mapping and/or mapping of multiple referents simultaneously onto different articulators. I discuss these gestures as a device for foregrounding and backgrounding information and address their potential role in narrative discourse structure.

## **2 Background**

A tight link exists between speech and gesture, on multiple linguistic levels. For the present paper, I am particularly interested in the levels of pragmatics and discourse. Previous work by McNeill and colleagues has shown that gesture may parallel/have relevance for the way the speaker keeps track of the referents in their story (Levy & McNeill, 1992; McNeill et al, 1990; McNeill & Levy, 1993). Further studies pursued this line of research. For example, Gullberg (Gullberg, 1998; Gullberg, 2003; Gullberg, 2006) found evidence that gestural reference tracking occurs both in first and second languages. Using a visibility manipulation, she found that L2 speakers gestured equally often whether the addressee could see them or not, but that the spatial arrangement of loci used to indicate different referents was qualitatively different in the two conditions (Gullberg, 2006). Similarly, other research found that native speakers tend to identify referents uniquely in gesture only when they also do so in speech (So et al, 2009). These studies investigated the spatiality of referring gestures. More recently, a study of German co-speech gesture found a correlation between how speakers map referents onto gestural articulators and referent accessibility in speech, suggesting that gestures reflect reference tracking on multiple levels (Debreslioska et al, 2013). Perniss and Özyürek (2015) further showed that gesture form and location interact for the purposes of reference tracking in hearing gestures as well as in a signed language.

In this paper, I discuss an additional way that gestures play a role in creating discourse

cohesion, namely the case of backgrounded gestural post-stroke holds co-occurring with foregrounded new information. Gestural holds are intervals in gesturing where the hands or the body remain relatively static, but not in a position of rest (Kendon, 1980; Kendon, 2004; McNeill, 1992). Holds are one way for gestural expression to take advantage of the multiple articulators that the body offers (i.e. two hands, face, body). Speakers and signers can exploit the fact that the articulators are capable of performing relatively independent functions simultaneously, e.g. by holding one hand steady, representing the ground, while depicting the figure with the other hand. This possibility has been documented in a variety of contexts for signed languages (e.g. Friedman, 1975; Gee & Kegl, 1983; Engberg-Pedersen, 1993; Liddell, 1998; Liddell, 2000; Liddell, 2003; Morgan, 2000; Aaron & Morgan, 2003; Dudis, 2004; Perniss, 2007; Engberg-Pedersen, 2011). Studies of co-speech gestures have also discussed this phenomenon (e.g. McNeill, 1992; McNeill & Levy, 1982; Singleton et al, 1995; Tutton, 2011; Stec, 2012). The findings of these studies suggest that co-speech gesturers do not often take advantage of the possibility of manually asymmetrical gestures (but see Bavelas & Chovil, 2000 for a suggestion that simultaneous manual and non-manual gestural expression frequently differs in representation). This is perhaps a reason why holds have received relatively little attention in the gesture literature, compared to strokes (although see Duncan, 1996; Kita et al, 1998; McCollough, 2005; Park-Doob, 2010). Enfield, however, explicitly discusses cases where the two hands perform different functions in co-speech gesture (Enfield, 2004). He describes gestures with what he calls symmetry and dominance phases. These occur in gesture sequences that begin with the formation of a two-handed gesture. The speaker then leaves the non-dominant hand in place, holding the final shape of the two-handed gesture, while the other hand continues to represent further content along with speech. Crucially, the informational content co-occurring with the hold on the non-dominant hand is relevant to the topic introduced as the two-handed gesture initially occurred. The hold delimits a stretch of discourse about a certain topic. Enfield thus categorizes this phenomenon as a way of creating textural cohesion with the help of gesture. A similar argument is put forward by McCollough (2005). Park-Doob (2010) also looks at gestural holds. He discusses a potential link between gesture holds and working memory, suggesting that holds might serve as externalized retrieval or recall cues, or as short-lived 'cognitive artifacts' (p. 99). Using an experimental approach he tested whether addressees take advantage of gestural holds to access information relevant to answering a comprehension question (Park-Doob, 2007). Although the results did not unequivocally show this to be the case, he did find some evidence (in the form of shorter reaction times) that gesture holds aided addressees recall in certain contexts. Park-Doob's work further shows that, from a production standpoint, gesture holds are multi-functional. Their functions include presaging new discourse content, maintaining links with respect to prior discourse content, as well as bridging pauses and disfluencies. The present paper aims to expand the perspective on functions of gestural holds to include reference to characters in narratives specifically. I discuss gesture sequences similar to the ones discussed by Enfield. The similarity comes from co-occurring gesture strokes and holds. However, I do not invoke the symmetry-dominance configuration discussed by Enfield. Additionally, in the gestures I look at in the present paper, the articulators depict story characters rather than physical objects. The focus of the paper is also not restricted to looking at the hands only; instead all bodily articulators are included. My focus is on the function of hold+stroke configurations to alternate the foregrounded/backgrounded information in the discourse, as discussed by Engberg-Pedersen (2011). I argue that the functions of referential cohesion and discourse continuity provided by post-stroke holds not only have relevance for spatial narratives

and descriptions of objects and their functions as previously shown (Enfield, 2004; McCollough, 2005; Park-Doob, 2010); the relevance of such gesture sequences extends to the reference of narrative characters as well. I will show this by providing examples of a variety of complex gestural sequences where one articulator maintains a ‘hold’ (representing backgrounded information) while another articulator continues the narrative by foregrounding other information.

### **3 Data**

The gestures examples that I discuss in the present study are drawn from a small corpus of Danish narrative retellings, containing close to five hours of video recordings. The recordings contain 12 native Danish speakers’ narrations of wordless video and cartoon clips. The speakers were university students (age 20-27) who volunteered to take part in the experiment. To encourage a natural setting for the narrations, each participant brought a friend to their experimental session (cf. Morgan, 1999). The participant assigned to the narrator role watched and retold a series of film and cartoon clips. The participant assigned to the addressee role listened to and then re-narrated each story in turn.

### **4 Examples**

I discuss three examples of speech-gesture sequences from the corpus. These examples were chosen to exemplify some of the ways that speakers can switch focus between certain information using speech and gesture in parallel. I show that gestural backgrounding via holds may be considered another way that narrators create textural coherence with respect to keeping track of characters in a story.

#### **4.1 Example 1**

The first example I will discuss comes from a retelling of a Pepé Le Pew clip (Warner Bros.). In this clip, Pepé, an enamoured skunk, is chasing a cat (whom he believes to be a skunk as well) through a snow-covered mountain area.

In this example, we see how the speaker begins and ends a longer gestural sequence with a two-handed ‘open arms’ gesture. In between, she holds the shape and position from the preceding gesture stroke on the non-dominant hand, while she performs another gesture stroke with her dominant hand, essentially momentarily backgrounding the information represented by the non-dominant hand. The speech pattern parallels this focus or attentional shift.

Figure 1a), 1b) and 1c) are taken from a narrative sequence in which the speaker describes how Pepé chases the cat to a cliff. The cat runs over the cliff, while Pepé stays at the top, waiting. The bottom of the cliff happens to be an icy upward and backwards pointing slope, so that when the cat reaches the bottom of the clip, it is propelled up into the air, and back into the arms of the skunk waiting at the top of the cliff.



Figure 1a. Arms Open Gesture representing the skunk.

- i)    og     så     ser     man    igen  
      and   then   see    one    again

*'and then you see again'*

- ii)   oppe   på     den   her   top    hvor   den   kom   fra  
      up    on     this   crest   where   it    came   from

*'on this crest where it came from'*

- iii)   hvordan       **stinkyret**   **staar**   **parat**   **sådan**   **her**  
      how           **skunk-DEF**   **stands**   **ready**   **like**   **this**

*'how the skunk is standing ready like this'*



Figure 1b. Fall into Arms Gesture representing the skunk on the dominant hand and the cat on the non-dominant hand.

- iv)    og     så     falder   **saa**   **falder**   katten  
      and   then   falls    **then**   **falls**   cat-DEF

*'and then the cat falls'*

In Figure 1a), the speaker performs a two-handed open arms gesture, showing the skunk's pose as he is waiting at the top of the cliff. The speaker's body, and both of her arms/hands represent the corresponding body parts of the skunk. Concurrent with this gesture, the speaker

produces the speech in i) – iii), where boldface indicates the timing of the gesture stroke. Figure 1b) shows what follows immediately after the gesture in Figure 1a). The speaker disengages her dominant hand (her right hand) from the representation of the skunk, and lifts it over her head. The speech in iv) tells us that this hand now represents the cat, who is flying through the air towards the skunk. However, the speaker's left hand is still held in place, and still represents the skunk, as does the speaker's body. In Figure 1c), the speaker again returns her dominant hand to the same position it had at the beginning of the gesture sequence, in Figure 1a). Once again, the dominant hand comes to represent the skunk, along with the non-dominant hand and the speaker's body, which were maintained as holds and represented the skunk throughout the entire gesture sequence.



*Figure 1c. Resuming the Arms Open Gesture representing the skunk.*

v)     **lige**    **i**        **dens**   **arme**  
       **right**   **into**   **its**    **arms**

*'straight into its arms'*

vi)    og        den    kysser   den  
       and    it      kisses   it

*'and it kisses it'*

Thus, in this example, the speaker begins by gesturally foregrounding the skunk in Figure 1a). In Figure 1b), the skunk remains part of the representation, but the gestural focus is on the stroke performed by the dominant hand, representing the skunk. In the final part of the gesture phrase, Figure 1c), the focused character is once again the skunk.

This switch in foregrounded character is paralleled by the sentence structure of the co-timed speech. In iii), the speaker uses a nominal expression to refer to the skunk, because she is switching references; the previous clauses were about the cat. As she goes on in iv) to explain about the cat falling into the arms of the skunk, she makes the cat the subject of the clause. Grammatical subjects are used for prominent references. The speaker then goes on to make the skunk the subject of the next clause, putting the skunk back into focus both verbally and gesturally, as she resumes her two-handed gesture from the beginning of the sequence.

## 4.2 Example 2

Example 2 shows a gestural sequence similar to Example 1, but here the articulators include the body more prominently than in the previous example.



Figure 2a. *Hugging the Cat Gesture, representing the skunk*

- |    |     |         |        |      |             |           |
|----|-----|---------|--------|------|-------------|-----------|
| i) | og  | katten  | ligger | så   | fuldstændig | udmattet  |
|    | and | cat-DEF | lies   | then | completely  | exhausted |

*'and then the cat lies completely exhausted'*

- |     |            |       |      |     |                |            |
|-----|------------|-------|------|-----|----------------|------------|
| ii) | stinkdyret | løber | hen  | og  | <b>krammer</b> | <b>den</b> |
|     | skunk-DEF  | runs  | over | and | <b>hugs</b>    | <b>it</b>  |

*'the skunk runs over and hugs it'*

The speaker here is narrating a story sequence in which Pepé the skunk is chasing the cat up a mountain. The cat eventually collapses from the exhaustion, and the skunk, catching up with the cat, proceeds to hug and embrace it.

In Figure 2a), the speaker's gesture represents the skunk and its action of hugging the cat. Both hands, and possibly the body as well, represent the skunk. The speech in viii) has the skunk as the grammatical subject and the cat as the object. Thus, in speech, the skunk is foregrounded, and in gesture the skunk is the only referent depicted. In 2b) the skunk is backgrounded, both in speech and gesture. The speaker keeps both his hands in their final position from the previous gesture stroke, 2a) and he adds his head and face as an articulator in the next gesture stroke in 2b). The gesture in 2b) shows how the cat, inside the skunk's embrace, looks extremely exhausted. The speaker's head (and arguably his body as well) represents the cat. The gesture stroke is a simultaneous tilt of the speaker's head and closing of his eyes, which depict the cat's exhausted state. Thus, the gesturally foregrounded referent shifts from the skunk in Figure 2a) to the cat in Figure 2b). Further, we also see that speech focus again parallels gesture focus; the subject referent changes between the two clauses in viii) and ix). In this example, Example 2, however, the speaker goes on to talk about the cat after the utterance in ix), instead of continuing his description of the skunk's actions, as we saw in vi) in Example 1).



Figure 2b. Exhausted Cat Gesture representing the skunk on the hands/arms and the cat on the body and head/face

iii)	og	<b>den</b>	<b>er</b>	<b>-katten</b>	er	stadigvæk	sådan	helt
	and	it	is	cat-DEF	is	still	like	fully
	sådan	fraværende						
	like	absent						

*'and it is - the cat is still like totally like absent'*

### 4.3 Example 3

Just like the two previous examples, Example 3 is an instance of gestural backgrounding. Unlike Example 1 and 2 however, this example does not involve a switch in referents in either modality. In this example, the speaker is describing how Pepé the skunk has become a military guard at a fort. She explains how he walks around carrying a rifle and watching the surrounding area from the top of the fort. Figure 3a) shows the speaker's depiction of the skunk marching and holding his rifle. The speaker's dominant (right) hand represents the skunk's hand holding the weapon. The speaker's straight back, her non-dominant hand (left) swinging back and forth as if walking, and her head, turning from side to side depicting alertness, all represent the skunk as well. The speaker's co-timed utterance in x) also focuses on the skunk. The gesture stroke in Figure 3b) immediately follows the one shown in Figure 3a). Here, the speaker has backgrounded the information represented by the dominant hand (depicting the skunk's grip on the rifle) with a post-stroke hold, and she simultaneously makes another gesture with her non-dominant hand. This gesture, however, also represents the skunk. The speaker moves her hand in the space near the left front side of her forehead. She traces a back-and-forth path with an extended index finger pointing up. Looking at the speech in xi), we understand that the upright index finger represents the skunk and the gesture's path is the same referent's movement on top of the wall of the fort. Gesturally, the speaker first focuses on the skunk's posture and how he moves his body parts in relation to each other in Figure 3a). In Figure 3b) she instead takes a wider perspective on the event she is describing, focusing on the skunk's movement in relation to external objects, in particular the boundaries of the fort. However, she links these two event perspectives gesturally by keeping the rifle-holding gesture from Figure 3a) visible while performing the path gesture in Figure 3b).





Figure 3a. Skunk as Guard Gesture, representing the skunk.

- i) **han**            **går**    **rundt** **og -**    **spejder**            **efter -** eller    holder vagt  
**he**                **walks** **around** **and-**    **scouts**            **for –** or        keeps watch

*'he walks around scouting for or keeping watch'*



Figure 3b. Skunk on top of the fort, representing the skunk with character representation on the dominant hand, and with observer representation on the dominant hand.

- ii) **går**            **rundt** **på**    **borgen**            **deroppe**            **på**    **toppen**  
**walks**            **around** **on**    **fortress-DEF**    **up there on**        **top-DEF**

*'walks around on the fortress up there on the top'*

This can also be seen in speech. In x) the speaker details what the skunk is doing 'han går rundt og - spejder efter - eller holder vagt ('he walks around - scouting for – or keeping watch') while in xi), går rundt på borgen deroppe på toppen 'walks around on the fortress up there on the top', her focus changes to *where* he is doing the action she described in x), namely on the top of the fort. Unlike the previous examples I saw, the speaker here maintains the same grammatical

subject throughout the two clauses, paralleling the structure of the gestural sequence, which also represents the same referent throughout.

## **5 Discussion**

The three gesture examples I have discussed here show both similarities and differences. In each case, the speaker begins the sequence by gesturally depicting a referent/a character from their narration. Subsequently, this representation is then backgrounded, allowing the speaker to focus on a related aspect of the situation they are describing. In each example, this is done with a post-stroke hold maintaining one articulator in the end position from the stroke that initialized the sequence. Co-timed with this hold, the speaker then carries out an additional gestural stroke with a non-held articulator. After this, the gesture either finishes, or the speaker repeats the gesture stroke that began the sequence. On these grounds, the gestures I have discussed in the current paper are comparable to those discussed by Enfield (2004). He views the different phases of such complex gestures as displaying distinct pragmatic functions with respect to the co-occurring speech (p. 117). I propose that the same holds true for the examples under discussion here. However, I also observe differences in our examples, both with respect to each other and to the type of gesture discussed by Enfield. On the articulatory level for example, the three examples I have shown exhibit different patterns. In Example 1 and 3, the primary articulators are the hands. In both cases, the gestural hold occurs on one hand (though the speaker's trunk is arguably involved in the hold as well), and the co-timed stroke is performed with the non-held hand. In example 2, however, the co-timed stroke is performed solely with the body, head and face, while the hands and arms sustain the gestural hold. Despite these differences, I want to make the argument here that the similarity in the gestural sequencing outweighs the difference in articulator types. The difference in their forms aside, the gestures serve the same function. Co-timing a gestural stroke with a hold effectively marks the two events parts as occurring simultaneously, not sequentially. This is an important function in narratives and I want to suggest that it makes gestures of this type worth further scrutiny. I also want to emphasize that although I have discussed only three examples of this type of gesture sequence, this is not a reflection of how often they actually occur in our data set. Gesture sequences consisting of a stroke followed by a post-stroke hold co-occurring with an additional stroke, often with another articulator, are in fact rather frequent, as also observed previously (McCollough, 2005; Park-Doob, 2010). One aspect of gesture sequences like the ones I have discussed here that is deserving of further study is the co-occurring speech. Example 1 and 2 showed that speakers can use hold+stroke combinations in cases of verbal switch-reference. However, Example 3 further showed that this type of gesture sequence does not necessarily accompany a switch in verbal referential focus. Further studies should examine whether there is in fact a general tendency for switch references and hold+stroke gestures to correlate. Related to this question is also the matter of representation type. In studies of simultaneous use of multiple representation types in sign languages this has sometimes been discussed as using different classifier types in different types of event representation (Permiss, 2007), as the creation of multiple perspectives (Aarons & Morgan, 2003) as body partitioning (Dudis, 2004) as differences in referential spaces (Morgan, 1999) or as different types of constructed action (Cormier et al, 2015). In Examples 1 and 3, the initial gesture maps the character, (the skunk in both examples), onto the speakers' bodies in a one-to-one fashion. This type of mapping has been likened to the use of constructed action in signers (Liddell, 1998; Quinto-Pozos & Parrill, 2015). In the next stroke, which co-occurs with the hold, the speakers

now maps an entire character (the cat in Example 1 and the skunk again in Example 3), onto just their forelimbs, which is reminiscent of the (whole) entity classifiers described for signed language (e.g. Supalla, 1982; Engberg-Pedersen, 1993; Emmorey, 2002; Perniss, 2007; Quinto-Pozos & Parrill, 2015). Example 2 shows a different pattern, in which both gestures represent a character on a large scale, that is, with no use of entity classifier-like constructions. Different uses of gestural mapping have also been discussed as gestural viewpoint (e.g. McNeill, 1992; Parrill, 2009; Parrill, 2010; Perniss, 2007). Under such analyses, the gestures analyzed here could be considered dual viewpoint gestures. Examples 1 and 3 combine character representation and entity representation (i.e. character viewpoint and observer viewpoint in the terminology of Parrill (2009), while Example 2 combines two instances of character representation (i.e. a chimera gesture in the terminologies of McNeill (1992) and Parrill (2009)). Parrill's work suggests that the gestures she calls dual viewpoint gestures are relatively rare in narratives. She also raises the question of what induces a speaker to use this type of gesture. Here, I propose that if we include hold+stroke combinations, these gestures are likely not as rare as has been assumed. Further, I would also point to foregrounding/backgrounding of narrative information as a potential factor in eliciting gestures with this kind of dual representation. As mentioned above, previous work has found that speakers vary how they map referents onto articulators in narratives (Debreslioska et al, 2013). When the referent had been recently mentioned, speakers tended to use one-to-one mapping between their own body parts and those of the referent. Conversely, if the referent was reintroduced into the narrative after being out of focus, speakers tended to depict it using other types of gestures (e.g. entity-classifier-like gestures or directional gestures). This suggests that further analyses of gestural mapping in the kind of hold+stroke gesture that I have discussed in the current paper might reveal a systematic influence of referent accessibility in the discourse. On the other hand, a gesture sequence like Example 3 suggests that referent accessibility cannot be the only factor determining gestural mapping, since both the hold and the stroke represent the same referent. Thus at present, questions about when and why the same or different referents are represented on multiple articulators, and how this interacts with speech patterns remain unanswered. However, it seems clear that speakers, just like signers, utilize the possibilities of multiple articulators to create discourse coherence when representing characters in a narrative. Future work might also look into whether there are commonalities between signers and gesturers in this domain both with respect to functionality (e.g. when is it appropriate or necessary to gesturally background a referent), and with respect to formal constraints on how to represent characters. Although the evidence is sparse, it appears that both signers and gesturers are able to make use of the information provided in a held articulator in a comprehension context. Work by Emmorey and Falgier (1999) on ASL discourse comprehension suggests that when a classifier is held on the non-dominant hand while the dominant hand drives the narrative forward with continued signing, the referent of the entity classifier stays activated in the mind of the addressee – more so than if the classifier is not held. As discussed above, Park-Doob (2010) found a similar tendency in gesturers. However, these studies have focused on rather narrow contexts. Further studies should test the effect of a held referent in additional contexts, including cases where articulators other than the hands are involved, and/or where the signer or gesturer uses different kinds of mapping.

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