ASPECT, NOT VERBAL PARTICLE: THE SYNAX OF DOUBLING IN MOTION VERBS IN SWISS GERMAN

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1. Introduction

A small class of deictic motion verbs in Swiss German exhibit what appears to be doubling behaviour. Such doubling is mandatory if its semantic conditions are met, and results in phonological reduction of the original verb. Examples (1) and (2) illustrate the construction for *choo* 'to come' and *gaa* 'to go'. These verbs' reduced copies, *cho* and *go* respectively, are often referred to as particles, and are marked accordingly as PRT in the gloss.

(1) Ich gang *go* poschte
    I   go   PRT shop
    "I'm going shopping."

(2) Ich chum *cho* de Onkel bsueche
    I   come PRT the uncle visit
    "I am coming to visit my uncle."

Though other doubling verbs exist,[1] the present account is limited to *gaa* and *cho*. Both are motion verbs, and share semantic and aspectual properties. Their doubled particles appear in two distinct positions – either before the direct object (DO) and the indirect object (IO), if present, or after both, but preceding the main verb. Thus, in (3a), *go* precedes the DO *t'Ross* 'the horse' and the IO *em Ritter* 'for the knight', while, in (3b), it follows both:

(3) a. Ich gang go em Ritter t'Ross   chaufe
        I   go   PRT the knight the-horses buy
        "I am going to buy the horses for the knight."

    b. Ich gang em Ritter t'Ross   go chaufe
        I   go   the knight the-horses PRT buy
        "I am going to buy the horses."

Positional preferences appear to vary somewhat with age, with older speakers relatively more likely to prefer (3a), where *go* is in its pre-object position (von Rotz, 2011).

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[1] Namely, *laa* 'to let/allow' and its associated particle *la*, as well as *aafaa* 'to begin' and its reduced particle, *afa*.

This preference would seem to track with the particle's origin – the pre-object particle position originated as a preposition homophonous with the motion verb *gaa* 'to go', with gradual reanalysis resulting in diachronic verbalization (Lötscher, 1993). Nowadays, field studies have shown that younger speakers characterize the particle as "being" the actual verb (von Rotz, 2011). In any case, broadly speaking, the post-object position is usually preferred. Section 3 will show that these two positions differ in their syntactic properties.

I propose that aspectual motion verbs (AMVs) and their doubled particles are links in a single movement chain, with particles appearing in positions through which the AMV has moved. i.e. the particles are overt traces of the AMV. Concretely, the AMV merges initially in *v*, is raised to a higher aspectual head (Asp), where it contributes aspect, then is raised again from Asp to C to meet the verb-second requirements of main clauses. Such movement is motivated by the lexical properties that distinguish doubled from non-doubled forms, the aspectual contributions made by AMVs, and Swiss German V2 structure. Each movement position is independently required in order for a derivation to converge.

In Section 2, it is shown that the lexical and aspectual properties of AMVs require that they must occupy at least two distinct functional categories. Section 3 demonstrates that AMVs must merge in *v*. Section 4 shows that AMVs also occupy Asp, and that movement of the AMV links the *v*, Asp and C positions together. Section 5 summarizes the paper and offers possible future directions for research.

2. Semantic and aspectual properties of doubling verbs

This paper's core proposal is the categorical duality of AMVs. If a given AMV occupies both Asp and *v*, it should, correspondingly, contribute properties associated with each head. This appears to be the case. The following section examines the relevant semantic facts.

2.1 AMVs have an aspectual effect

AMVs are motion verbs, but never main verbs. This suggests they are not in V. Indeed, AMV forms select distinct external theta roles and make spatial aspectual contributions distinguished primarily by deixis. This section explores these properties.

Doubled, AMV forms (4b) necessitate agentive motion through space. Non-doubled forms lack this requirement. Thus, in (4a) the agent does not move, whereas, in (4b), the agent must move, for instance from some other room and towards the bed (von Rotz, 2011):

(4)   a.   Ich gang schlafe
           I   go   sleep
           "I'm (in bed and) going to sleep."
      `
      b.   I gang go   schlafe
           I go   PRT sleep
           "I'm going (into the bedroom) to sleep."

Gaa 'go' and *choo* 'come' communicate motional deixis via contrast: *choo* is proximal, whereas *gaa* is non-proximal. Thus, in (5a), motion must be towards the speaker; in (5b), motion towards the speaker is excluded (van Riemsdijk, 2002):

(5) a. Chunsch cho ässe?
         come-you PRT eat
         Are you coming (e.g. to my house) for dinner?

     b. Gaasch   go ässe?
         come-you PRT eat
         Are you going to dinner?

A complication arises in dialects that permit mixed deixis, where *choo* may appear with either AMV particle, i.e. either *cho* or *go*. Such forms are semantically distinct, with *choo + cho* entailing proximal motion, as in (5a), while *choo + go* describes a complex path, as paraphrased below in the gloss for (6) (example from van Riemsdijk, 2002):

(6) Chunsch go tschuute?
     come-you PRT soccer-play
     Are you coming to play soccer?
     E.g. "Are you coming to my house so that we can go somewhere else to play soccer?"

Mixed deixis is mono-directional: *gaa* may not combine with *cho*. Van Riemsdijk (2002) explains this difference as one of feature valuation, with *gaa* and *choo* respectively specified as [-proximal] and [+proximal]. A simpler solution, though, and one alluded to by van Riemsdijk, may be to treat the deixis of motion as privative. If *choo* is [proximal] and *gaa* lacks directional specification,[2] and if, moreover, both particles are morphological expressions of aspect, then *go* does not clash with *choo*; rather, it alters the form of the proximal path. There is, however, no featural clash. Conversely, *gaa-cho* mixed deixis – i.e., "going to Y [in order] to come to X" – is semantically stilted in that the frame of reference switches mid-utterance from the agent to their destination. From a single perspective, there is an evident proximality mismatch – thus, one cannot use *gaa-cho*.
That is, AMVs convey spatial aspect – relative motion from a single frame or point. Similar constructions are attested in a variety of languages, including (North) American English (Jaeggli & Hyams, 1993) as well as Swedish and Marsalese (Cardinaletti & Giusti, 2001), among others. A key, though not exclusive property of spatial aspect in these languages is its single-event interpretation (Cardinaletti & Giusti, 2001). That is, the motion component and the main verb action comprise a single, indivisible event.
Examples (7) and (8) show that the same holds for Swiss German AMVs. Negation of only the main verb results in an ungrammaticality, even with coordinated V-heads (7a,

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[2] I.e. *go* is the elsewhere case.

adapted from Brandner & Salzmann, 2009), while replacement of the AMV with a higher functional verbal category, e.g. a modal (7b), does not retain the single event interpretation:

(7) Ich gang jede Taag [$_{Asp}$go [$_{vP}$ Gmües   poschte und probiere]],*aber es hät nie
    I   go   every day   PRT vegetables buy   and sample   *but it has never
    "I go every day to buy and sample vegetables *(but there are never any)."

(8) Ich [$_{CP}$ will jede Taag Gmües   poschte und probiere], aber es hät nie   Probe
    I   want every day vegetables buy   and sample   but it has never samples
    I go every day to buy and sample vegetables, but there are never any samples."'

This indicates that single-event interpretations depend upon on the AMV. The AMV, then, must occupy some category above V that is able to produce this effect, e.g. Asp.

2.2   AMVs have properties consistent with *v*

AMVs also contribute specific lexical properties to a sentence. These properties include restrictions on theta role assignment (as compared to non-AMV forms) as well as the ability to be modified by vP adjuncts. Both facts suggest a *v* analysis.

Gaa and *choo* are lexical verbs, and retain much of their lexical content even when deployed as AMVs. This is in line with Cardinaletti & Giusti's (2001) proposal that, when a lexical verb is merged into a functional category, that category's syntactic position determines which of the verb's properties are expressed. The higher the category, the fewer properties realized – as the derivation proceeds, it cannot backtrack and "re-do" earlier merges. Thus, for instance, a verb merged in T may no longer contribute to argument selection, as its arguments have already been selected. Unrealized properties are "lost", and bleaching subsequently occurs. As such, a verb's merge position can be deduced by the properties that it retains. This should also apply to AMVs.

Following this line of thought, if AMVs merge in *v*, then they should not select internal arguments. Conversely, they should be able to affect the selection of external theta roles and ought to be modifiable by vP adjuncts. Both properties are attested. In terms of theta roles, AMVs form minimal pairs with their non-aspectual, lexical forms. AMVs, and only AMVs, require an agent as the external argument (Brandner & Salzmann, 2009):[3]

(9) .a.   *De Gstank vom   Restorant gaat d Nachbere immer go ärgere
           the smell   of-the restaurant goes the neighbors always PRT annoy
           The smell of the restaurant always goes and annoys the neighbours."

     b.   Oisi Chind   gönd d   Nachbere immer go ärgere.
           our children go   the neighbors always PRT annoy
           "Our children always go annoy the neighbours."

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[3] With one exception. The inchoative aspect of *choo-cho* can be applied to phenomena like weather (which is not an agent), in which case an expletive pronoun is used, as in (8a).

In (9a), *de Gstank vom Restorant* 'the smell of the restaurant' is not an agent, and therefore it is ungrammatical. Conversely, in (9b), agentive *Oisi Chind* is unproblematic. These theta role differences stem purely from the requirements of AMVs.

Similarly, if AMVs merge in the mid-extended projection, then Cardinaletti & Giusti (2001) would expect them to be modifiable by vP adjuncts, subject to single-event restrictions. This is seen in (10), suggesting and Asp or *v* position (adjunct in bold):

(10) Ich gang mit em Auto [$_{vP}$ Schoggi   go   chaufe]
     I   go   with the car   chocolate PRT buy
      "I'm going by car to buy some chocolate."

If the realized properties of a lexical head are determined by the functional category in which that head is merged, then the fact that AMVs do not select internal arguments suggests that they may not occupy V[4]; the fact that they do select secondary external theta roles suggests that they occupy *v*; and the fact that they can be modified by vP adjuncts precludes them from higher functional categories than the mid extended projection.

2.3   The prerequisites of movement

The previous section showed that AMVs exhibit properties consistent with two distinct heads: *v* and Asp. If, during the derivation, a motion verb merges in *v*, and is subsequently raised to Asp, then that verb should exhibit properties consistent with the demands of both of those heads. Both the verb and its particle should also exhibit behaviour consistent with membership in the same movement chain.

Van Riemsdijk (2002) identifies properties of AMVs that demonstrate precisely such behaviour. Doubled particles are *obligatory*, in that they must co-occur with their doubling verbs (11); they are *exclusive*, in that they may never occur with other verbs of motion (12); and they are *dependent*, in that they may never occur alone (13).

(11) …das si   de zmittag chunt *(cho) choche
    …that she the lunch   comes   PRT cook
     "…that she is coming to cook lunch."

(12) Mer händ en   gsee (*go) abfaare
    We   have him seen   PRT drive-away
    "We have seen him drive away

(13) *Si   wil   häi   go
     She wants home PRT
     She wants to go home

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[4] It is also, in principle, possible that *gaa* and *choo* in their AMV forms do not differ from their non-AMV varieties in terms of internal argument selection. However, Section 2.2 presents additional reasons to doubt that AMVs are merged in V, as do the syntactic facts of Section 3.

(11) is ungrammatical if the AMV and its particle do not co-occur. Conversely, in (12), the particle *go* may not co-occur with a non-AMV. In (13), the particle *go* is unacceptable if the AMV *gaa* is not present. While these properties do not, per se, demand movement, they are consistent with a movement account.

In sum, then, AMV particles behave as though they are traces of an AMV (11-13); they occupy two distinct positions, either pre- or post-object (3a-b); and they exhibit the properties of two different functional categories. This would seem to implicate movement.

3.   Merge and Move within vP

On a movement analysis, doubled particles are traces of a verb. The copy in *v* is realized in the post-object position, whereas the copy located in Asp is realized in the pre-object position. The fact that AMV particles may appear in two distinct positions is a consequence of the functional heads required to capture the semantics of AMVs. Sections 3 and 4 show that *v* and *Asp* are filled by the same AMV. Section 3 examines the post-object *go*-position, *v*, and offers evidence that *v* hosts an AMV copy. This evidence comes from the facts of topic constituency, low adverb positions, and rightward directional PP complements.

3.1   Topicalization

In situ accounts of *go* analyze it as belonging to VP (cf. Brandner & Salzmann, 2009). Salzmann (2010) has also proposed that *go* first merges in VP, then raises along with the main verb to *v* as part of standard V-to-v movement. However, neither proposal accounts for *go*'s dual categorical properties, nor are VP merge positions clearly supported by the constituency facts. The present analysis, however, accounts for both of these factors, and explains the different constituencies of the pre-object and post-object *go*-positions.

Perhaps the most robust test of constituency in Swiss German is whether or not a string can be topicalized. In a Swiss German matrix clause, the constituent in first position is understood to be the sentential topic. Following the topic, the highest available verb is moved to C, becoming the second constituent; all other material follows. This results in verb-second (V2) order. Because the topic position is limited to a single constituent, whether or not a string can serve as a topic serves as a constituency test.

For the present problem, if AMV particles fill *v*, then they should only form valid topics with constituents containing *v*. That is, we would expect for topics that contain *go* to contain or consist of at least vP. Conversely, topics containing only constituents lower than *v* should never form acceptable topics with *go*. The expected structure is represented in Figure 1; (14)a-c show the most crucial expected valid topics and their constituency:
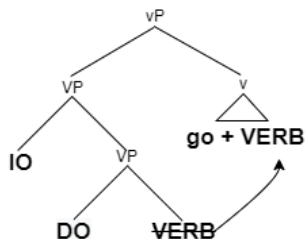

Figure 1. Constituency structure of VP and vP.

(14) a. vP [_{vP} [_{VP} IO DO VERB] [_v go + VERB]]
     b. *v*   [_v go + VERB]
     c. VP   [_{VP} IO DO ~~VERB~~]

Corresponding to (14), the structures in (15) do make acceptable topics (15a is the unmarked baseline):

(15) a. Ich gang morn   em Ross Heu go   chaufe
         I   go   tomorrow the horse hay PRT buy
         "I am going to buy the horse hay tomorrow."

     b. [_{vP} em Ross Heu go chaufe] gangi morn.
          the horse hay PRT buy   go-I   tomorrow

     c. [_v go   chaufe] gangi morn   em Ross Heu.
          PRT buy   go-I   tomorrow the horse hay

     d. ?[_{VP} em Ross Heu] gangi morn   [go chaufe]
          the horse hay   go-I   tomorrow PRT buy

(15d) is marginal, presumably because, absent the main verb, the DO and the IO superficially appear to be separate constituents. All three examples, though, are grammatical. Conversely, AMV particles combined with sub-VP constituents are very clearly ungrammatical. (16a) attempts to group *go* with the DO; (16b) groups it with both the DO and the IO, excluding the main verb. Neither combination is acceptable.

(16) a. *[_x go   em Ross] gangi morn   Heu chaufe.
          PRT the horse go-I   tomorrow hay buy

     b. *[_x go   em Ross Heu] gangi morn   chaufe.
          PRT the horse hay go-I   tomorrow buy

Perhaps more crucially, the main verb *chaufe* forms a simplex constituent only in the absence of an AMV (17a-b). In an AMV clause, the minimal constituent includes the AMV particle, i.e. a trace (15b).

(17) a. *[_x chaufe] gangi morn   go   em Ross Heu.
          buy   go-I   tomorrow PRT the Horse hay

     b. [_v chaufe] wetti morn   em Ross Heu.
          buy   want-I tomorrow the Horse hay

These facts speak against an *in situ* account. If *go* were truly *in situ*, then either it would form a constituent with some combination of the verbal arguments in (16a-b), or else its constituency with the main verb should preclude topics of the sort in (15d).

Salzmann's (2010) movement proposal is not definitively excluded, but requires an additional and otherwise unattested step.

Also in favor of movement is the fact that the pre-object Asp position exhibits different constituency facts. In (18), the vP adjunct *mit em Auto* 'with the car' comprises a single constituent with pre-object *go*, but not post-object *go*. Figure 2 presents the schematic structure, while (18a-d) reflect the constituency facts:
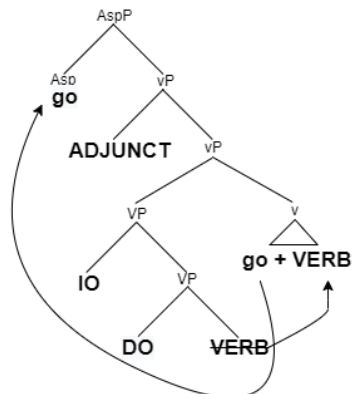

Figure 2. Constituency structure of AspP, vP and VP.

(18) a.   Asp [Asp go [mit em Auto] Gmües   poschte] gangi [go adjunct DO V]TOP
              PRT with the car   vegetables shop   go-I
         "I'm going with the car to go shopping for vegetables."

   b.   * [x go   Gmües   poschte] gangi [mit em Auto]⁵   *[go DO V]TOP
              PRT vegetables shop   go-I   with the car

   c.   VP [vP Gmües   [v go   poschte]] gangi mit   em Auto [DO go V]TOP
              vegetables   PRT shop   go-I with the car

In (18a), pre-object (Asp) *go* forms a valid topic with all other non-verbal material. Conversely, in (18b), pre-object *go* may not form a topic with the VP but excluding the PP *mit em Auto* 'with the car'. Crucially, in (18d), post-object (*v*) *go* forms this same constituent, suggesting that it – but not pre-object *go* – is syntactically below the vP adjunct. This would seem to suggest that the two *go*-positions are distinct.

2.2   Low Adverbs

Low adverbs in Swiss German occur only within VP (Brandner & Salzmann, 2009). They thus serve as a possible means for delineating VP's syntactic boundaries. If a main verb moves to *v* during the derivation, then low adverbs should be able to intervene between the main verb and its complements. Conversely, if the main verb remains in its base position, then low adverbs should never intervene this way.

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⁵ (18c) is grammatical if *[mit em Auto]* is understood as an afterthought or post-sentential tag.

In (19a), after movement of V to *v*, a low adverb adjunct appears at the right edge of VP, preceding the constituent [_v cho + VERB], but following all VP internal constituents, including the direct object. In (19b), unsurprisingly, the same adjunct may not intervene between the doubled particle and the main verb. I attribute this to the fact that a constituent merged in VP cannot appear between two parts of a head that is external to VP.

(19) a.   De Chämmerer chunt [_{vP}[_{VP} t'Ross   <u>gmüetlich</u>] [_v cho   chaufe]]
              The chamberlain comes   the-horses unhurriedly   PRT   buy
              "The chamberlain is coming unhurriedly to buy the horses."

        b.   *De Chämmerer chunt d'Ross   cho <u>gmüetlich</u>   chaufe

One might yet contest that (19) merely shows scrambling – an otherwise attested Swiss German process. On a scrambling analysis, the DO, *t'Ross* 'the horse', is moved out of VP, leaving the adverb to intervene between the DO's new position and the VP-internal position of *go*. However, this fails on two counts. First, recall that post-object *cho* is the more unmarked of the two *cho*-positions. A scrambling analysis would require that this unmarked order be obtained by evacuating VP of all content except for adverbial adjuncts – whereas the non-default pre-object order would arise directly from obligatory syntactic operations. This would be quite unexpected. Second, a scrambling analysis does not explain why the two *cho*-positions exhibit different behaviour vis-à-vis the low adverb. In the case of pre-object *cho*, the adverbial may freely intervene:[6]

(20) De Chämmerer chunt [_{AspP} cho [_{vP}[_{VP} t'Ross   gmüetlich] [_v chaufe]]]
      The chamberlain comes   PRT   the-horses unhurriedly   buy

     This positional difference implies a categorical difference as well. Pre-object *cho*, if it fills Asp, would permit the order in (20), whereas post-object *cho* in *v* would not, as seen above in (19b). Low adverbs thus also serve to distinguish the two possible particle positions.

2.3   Rightward complements make movement to *v* non-vacuous

In Swiss German, as in Standard German, movement of V to *v* is normally vacuous. This is a consequence of the head-finality of German VP. Verbal arguments, in addition to most other VP material, are realized linearly prior to V, meaning that no phonological strings intervene between V and *v*. One unusual exception is rightward directional complements, which Murphy (2021) identifies, for Standard German, as producing non-vacuous V-to-*v* movement. Similar structures occur in Swiss German. As such, if AMVs do indeed merge first in *v*, a rightward VP complement should be expected to surface following the direct object, but preceding the constituent [_v *go* + verb].

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[6] Similar facts obtain for several other phenomena (e.g. negation), where the leftward and the post-object particle positions permit different orders.

Before we delve into the facts, though, an overview of these complements is in order. (21a) and (21b) are Swiss German versions of sentences from Murphy (2021). (21a) contains a leftward directional complement, while (21b) contains a rightward one. The variation between them can be understood as a consequence of whether the PP is at the left or right edge of VP.[7] When at the right edge of VP, the PP intervenes between V and *v*.

In both (21) and (22), the verb *mitnaa* 'take with/take along' consists of a so-called separable prefix (*mit* 'with') and a 'core' verb (*naa* 'to take').[8] The prefix remains *in situ* even as the verb itself is raised (directional complements in bold):

(21) wämmer s'Chind **is   Büro** mitnimmt
      when-one the-kid   into-the office with-takes
      "when one takes the kid along into the office."

(22) wämmer   s'Chind mit **is   Büro** nimmt
      when-one the-kid with into-the office takes
       "when one takes the kid along into the office."

The structures in (21) and (22) are represented by the trees in Figures (3a) and (3b). As noted above, the sentences differ only in terms of the direction of the adjoined PP:
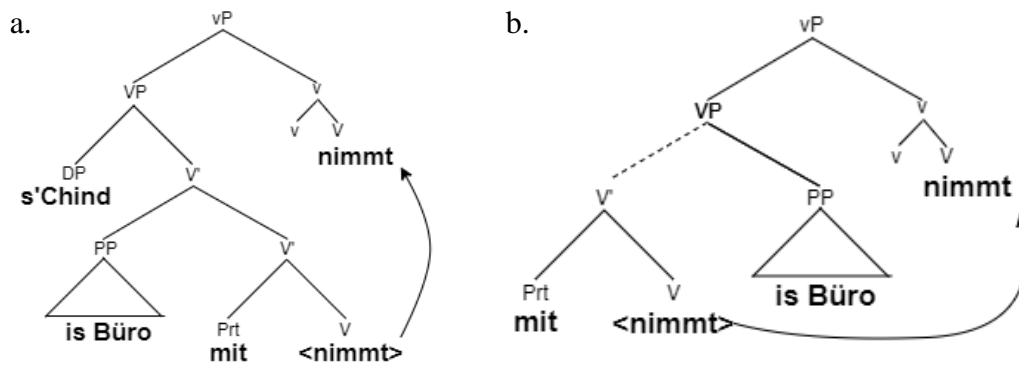
Figures 3a and 3b. Leftward- and rightward directional PPs.

Forms like those in Figure 3 can be combined with AMVs to show movement of the main verb into *v*. The separable prefix marks the position of V, while *v* is occupied by a copy of the main verb. If post-object *go* were indeed merged in or near V, it should precede the rightward PP; whereas, if it were merged in *v*, it should follow that complement, preserving the same [$_v$ *go* + verb] constituent that was derived by topicalization.

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[7] It could also be argued that complement direction results from movement, but this makes no difference to the analysis. What matters is only the fact that these complements appear in both pre-object and post-object surface positions.

[8] Separable prefix verbs consist of a verb combined with some kind of prefix, usually a preposition, e.g. *mit* 'with' + *gaa* 'go' = *mit-gaa* 'go with/accompany'. The prefix is left *in situ* as the derivation proceeds, most obviously in matrix clauses, where the verb itself raises to C, e.g. *Ich **gaa** morn **mit*** "I will go to tomorrow."

In (23), the prefix *inne* 'in' and the verb *ziieh* 'pull' form the verb *inneziieh* 'pull in'. The prefix *inne* remains *in situ* in the head of VP, while *ziieh* raises to *v*, resulting in its separation from its prefix by the rightward complement *in Fluss* 'in the river'. As predicted, the constituent [$_v$ *go* + verb], appears after the complement (Figure 4).

(23) Ich gang warschinli go   de Sepp inne in   Fluss go ziieh
     I   go   probably   PRT the Sepp into in-the river PRT pull
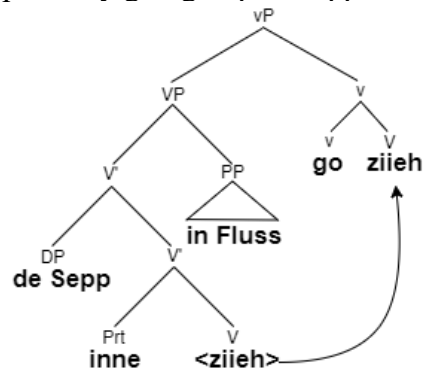   I am probably going to pull Sepp into the river."

'**Figure 4.** An AMV clause with a rightward directional PP.

Example (23) constitutes compelling evidence that *go* is not in VP. Instead, the surface order reflects the syntax one would expect following the main verb's incorporation with *go* in *v* after it raises there from V.

At first glance, incorporation complicates matters, since only *go* subsequently undergoes movement from *v* to Asp, but Branigan's (2010) provocative movement provides a simple solution to this problem: all movement is the same operation. Head movement is merely the product of independent syntactic constraints. Thus, much like phrasal wh-movement may target either a whole phrase or just the wh-element itself, head movement may target either the entire complex head or just one relevant constituent thereof. Adopting this analysis, doubled particles face no obstacle to movement.

Overall, then, the facts discussed in this section suggest that AMVs merge in *v*. Topic constituency derives the constituent [$_x$ Particle + Verb], but only for the post-object *go*-position; it also distinguishes this smaller constituent from the larger one that contains pre-object *go*. Assuming that low adverbs are merged at the right edge of VP, the fact that low adverbs precede AMVs indicates that AMVs are VP external. This suggests that [$_v$ Particle + Verb] occupies *v*. Further evidence for this analysis is provided by the word order of directional PP complements, AMV particles, and main verbs. Assuming that such PPs follow the head of VP, and assuming as well that V moves to *v*, the merge position of AMV particles both following the PP and directly preceding the main verb indicates that post-object AMVs likely occupy *v*. Vis-à-vis *v*, then, the syntactic facts thus appear to mirror the semantics of the AMV construction.

4. Doubled Particles are moved from *v* to Asp (and then to C)

Section 3 distinguished the post-object (*v*) particle position from the pre-object (Asp) particle position. The lexical properties of Swiss German AMVs correspond to the syntactic facts that show *v* to be their first merge position. Likewise, AMVs make an aspectual contribution, which I attribute to the fact that they contain content interpretable in Asp. Section 3.2 showed that pre-object *go* comprises a larger constituent than post-object *go*, including – crucially – little vP adjuncts. Conversely, Brandner & Salzmann (2009) identify *go* as occurring below high adverbs, producing sentences like (24), based on this paper's (3a):

(24) Ich gang wahrschinli go em Ritter t'Ross   chaufe
       I   go   probably   PRT the knight the-horse buy
       "I am probably going to buy the horses for the knight."

     Or, in other words, pre-object *go* precedes vP, but follows higher functional categories like those where auxiliaries and modals are merged. This position corresponds to the head of AspP, assuming that this phrase is head-initial. That is, each *go*-position corresponds one-to-one with a functional head: when *go* follows VP, *go* is in *v*, but when *go* precedes VP (and vP), *go* is in Asp.
     Swiss German V2 order requires movement of the highest verb to C, the second position in the matrix clause. If, for AMVs, movement from Asp to C obtains, then the (non-C) merge position of their full verb forms (*gaa*/*choo*) comes for free. If particles were not traces, then not only must the particles themselves be assigned some syntactic position, but the copy of the verb in C must still have moved there from a lower head – presumably, still from Asp.
     Figure 5 shows the proposed movement chain, where "particles" may fill syntactic positions through which the AMV has moved:
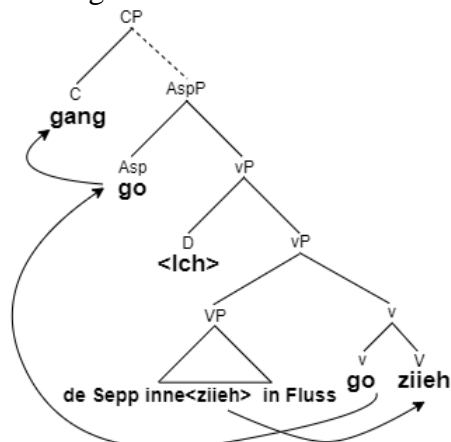

Figure 5. Full movement chain of AMVs.

Key evidence supporting Figure 5 is the fact that complex AMV clauses often exhibit particle resumption. Such resumption is optional, but is increasingly strongly preferred the

more it aids with clausal comprehension, as seen above in (23). Likewise, in (25), the second AMV particle serves as an ordering aid for clarity:

(25) ?Niemert usser eme Kanadier gächt   im Frühlig go s'Matterhorn   in Shorts
         No-one except a   Canadian go.SUBJ in spring   go the-Matterhorn in shorts

       go bsueche
       go visit
        "No-one but a Canadian would ever go visit the Matterhorn in shorts in spring."

This is compelling evidence for movement. If doubled particles were in fact some sort of element *in situ*, resumption would not be expected. On the other hand, recall that the low adverb facts, as well as topic constituency, distinguish two positions for AMVs, *v* and Asp. These positions correlate with the dual semantic contributions of AMVs, as outlined in Section 2 above. Doubled particles, then, seem to be best analyzed as overt traces: they only ever appear in positions through which an AMV has moved. Movement from *v* to Asp leaves a trace in *v*, and movement from Asp to C leaves a trace in Asp.

Movement from Asp to C also seems to produce observable effects. As noted previously, Swiss German is V2: in matrix clauses, the second position is C, and it is filled by the highest verb. In an AMV construction absent a modal or auxiliary, the verb that fulfills this V2 criterion is the full AMV itself. Once the AMV reaches C, it must be overtly realized in order to spell out pertinent features (person, number, tense and so forth). This is obligatory, and results in three AMV positions:

(26) [$_{CP}$ de Chämmerer [$_c$ chunt$_i$] [$_{Asp}$ CHOO$_i$ t'Ross   [$_{vP}$ cho$_i$ chaufe]]]
           the chancellor   come   come   the-horses   PRT buy
       "The chancellor is coming to buy the horses."

Conversely, when another verb – a modal or an auxiliary – is merged in a matrix clause higher than Asp, the higher verb moves to C, while the AMV remains in its Asp position:

(27) [$_{CP}$ de Chämmerer [$_c$ wett] [$_{Asp}$ GAA$_i$ t'Ross   [$_{vP}$ go$_i$ chaufe]]]
           the chancellor   wants   go   the-horses   PRT buy
       "The chancellor wants to buy the horses."

The full (non-particle) copy of *choo* in C in (26) is, thus, purely the consequence of overarching, language-specific demands. It is not an inherent property of the AMV itself. An AMV in C bears T-related features because it has been raised from Asp to a category where those features can be realized. Thus, in (27), where a modal fulfils the V2 requirement, the AMV remains in Asp and does not bear T-related features.

A movement account, then, explains all AMV positions. The derivation of a sentence with AMV movement from *v* through Asp to C is shown in Figure 6a, while the derivation of a sentence with AMV movement from *v* to Asp – with a higher modal

merging in C[9] – is shown in Figure 6b. Movement of the AMV to C is blocked by the modal; without a pressing syntactic reason to realize multiple copies of the chain, only one copy of *choo* is expressed – and in such a way as to clearly mark spatial aspect. The corresponding sentences are respectively presented in (28) and (29):
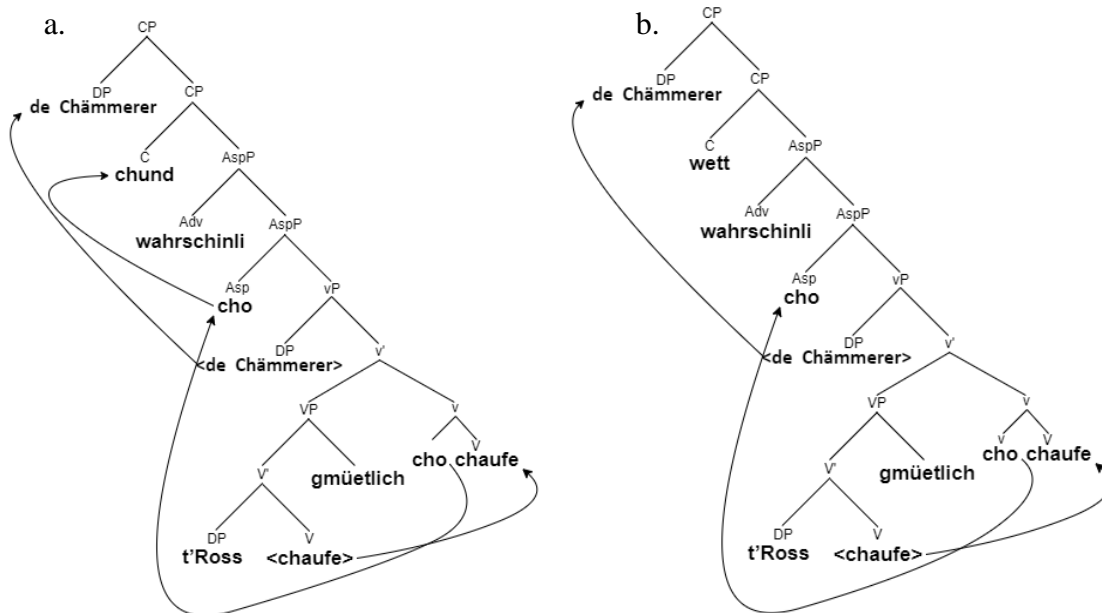

Figure 6. Movement of AMVs from *v* to Asp to C.

(28) De Chämmerer chund (cho) wahrschinli t'Ross   gmüetlich cho chaufe
     The chamberlain comes (PRT) probably   the-horses unhurriedly PRT buy
     "The chamberlain is coming unhurriedly to buy the horses."

(29) De Chämmerer wett (cho) wahrschinli t'Ross   gmüetlich   cho chaufe
     The chamberlain wants (PRT) probably   the-horses unhurriedly PRT buy
     "The chamberlain is coming unhurriedly to buy the horses."

This analysis accounts for both the aspectual and the *v*-related properties of AMVs. It not only predicts two distinct positions for particles, but also the fact that both positions may be simultaneously filled.[10] Moreover, the "disappearance" of full verb forms in the presence of a modal follows directly from prohibitions on the expression of more than one member in a chain.

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[9] I assume, for simplicity, that *wett* merges directly in C. In practice, *wett* must presumably move, but this has no bearing on the present analysis.

[10] The fact that morphological marking may occur in both syntactic positions is likely the diachronic consequence of the AMV construction's origin (cf. Lötscher, 1993).

5.   Conclusion

This paper analyses a case of so-called "doubling verbs" in Swiss German. Two lexical motion verbs, *gaa* 'to go' and *choo* 'to come', contribute a spatial-aspectual reading if and when they co-occur with what has often been termed a "doubled particle." The present paper finds that AMVs exhibit both spatial-aspectual and lexical properties, which in turns suggests that AMVs realize two distinct functional heads. Syntactic evidence drawn from a variety of sources shows that, correspondingly, doubled particles may appear in two distinct positions. The post-object particle position maps to *v*; the pre-object position maps to Asp. These positions are linked by movement from *v* to Asp. In matrix clauses without a higher modal or auxiliary verb, the AMV moves from Asp to C to satisfy V2 requirements, further suggesting that doubled particles appear in positions through which an AMV has passed. In other words, such particles are traces. The present analysis explains the yet unanswered question of why AMVs, in the presence of a modal, are often realized only by the particle. Future work might include an analysis of the remaining Swiss German doubling verbs, *laa-la* and *aafaa-afa*, which contribute causative and passivizing effects, or an analysis of the interactions of tense and aspect visa-vis AMVs and higher verbal categories.

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