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On the semantic function of domain instrumentals

1. Introduction

This paper discusses nonprototypical uses of Finnish instrumental¹ adverbials from the point of view of the *causal order hypothesis* proposed by Croft (1991). The basic assumption of the hypothesis is that elements with different semantic roles and syntactic functions can be arranged linearly in a "causation chain", based on the causal relations prevailing between them. In the causation chain, element A precedes element B if A transmits a force to B. For instance syntactic subjects (who indicate agents) prototypically precede objects (who indicate patients) in the causation chain. However, it should be kept in mind that the causal order of participants is not always reflected in actual word order.

In the causal order hypothesis, an *instrument* is "an entity that is intermediate in the causal chain between the subject (initiator) and the direct object (final affected entity)" (Croft 1991:178). In its prototypical function, an instrument thus transmits a force from the agent to the patient. Instrumentals that I regard as nonprototypical, or "domain instrumentals" (for the term, see Verhagen 1986: 150), deviate from prototypical ones in indicating instruments that are not used by any

¹ A terminological distinction is assumed between *instrument* (an extralinguistic entity) and *instrumental* (a linguistic expression referring to an instrument). What I have in mind when talking about prototypical vs. nonprototypical uses of instrumentals is that different semantic and syntactic contexts superimpose different readings to instrumental adverbials.

participant of the predicated relation. There are at least two different types of domain instrumentals. The first type consists of instruments that are used by an external, outside agent, whose existence they implicate (e.g. in a sentence with an inanimate, non-agentive subject like *The rope cut with a knife* where the instrumental implicates an agent who uses the knife). The second type consists of examples where the instrument is not used at all and the instrumental rather sets up a frame or mental space of its hypothetical use (in the sense of Fauconnier 1985). In the following discussion, these two subgroups of domain instrumentals are referred to as *cause instrumentals* and *conditional instrumentals*, respectively.

An indication of the special syntactic status of domain instrumentals is that they can sometimes remain outside the scope of negation - a feature that distinguishes them from prototypical instrumentals (see section 2.2.1). Another peculiarity of domain instrumentals is that unlike prototypical instrumentals they allow the occurrence of other instrumentals in the sentence (see section 3). In my view, this justifies their classification as clause-modifying adverbials rather than verb modifiers (like prototypical instrumentals are). In Croft's (1991) terminology, domain instrumentals correspond best to the semantic role *cause*, which is "an event (action or state) that causally immediately precedes the event sequence denoted by the main verb". The syntactic status of domain instrumentals as setting adverbials can thus be seen as a reflection of their semantic function as domain markers.

2. Instrumentals in a causation chain

In this section I propose a classification of Finnish instrumentals based on their status in the causation chain. I show how the relation between the instrumental and the verb may vary and how instrumentals may gain properties of a setting adverbial. Different uses of instrumentals are divided into three main groups: 1) prototypical instrumentals, 2) cause instrumentals, and 3) conditional instrumentals. It is argued that in the causation chain, cause and conditional instrumentals (as opposed to prototypical ones) precede all other elements of the clause nucleus.

2.1. Prototypical instrumentals

The function of prototypical instrumentals corresponds to the paradigmatic case of causation, which is "an object A colliding with an object B and making it move in a way it would not otherwise have moved" (E. Itkonen 1983:19). In the causation chain (Croft 1991: Ch. 5), the instrumental is situated between the agent and the patient; it indicates an instrument that is used volitionally by the agent in performing the action described by the verb. The instrument is an "object which plays a role in bringing a process about, but which is not the motivating force, the cause, or the instigator" (Chafe 1970:152). Examples of Finnish prototypical instrumentals (where the instrumental is in the adessive case) are given in (1) and (2):

- (1) Äiti söi puuroa lusikalla.
 Mother eat+PST+3SG porridge+PAR spoon+ADE
 'Mother was eating porridge with a spoon'.
- (2) Elmeri löi kiveä vasaralla.
 name hit+PST+3SG stone+PAR hammer+ADE
 'Elmeri hit the stone with a hammer'.

However, even among instrumentals classified here as prototypical there are several types that do not perfectly

correspond to the strictest definition but which are nevertheless clearly instrumental in nature. One such type are the instrumentals which introduce vehicles, i.e. entities in physical motion, containing other entities within them. Vehicles often have a double function as instruments and containers, and sometimes the sentences are ambiguous between the locative and instrumental readings. Ambiguities may also arise between volitional and non-volitional readings, and hence the subjects can have either the role 'agent' or 'theme'. The subjects of the examples discussed here are animate nouns, thus leaving room for a volitional interpretation (see examples 3 and 4; for a discussion on inanimate subjects, see 2.2.1.):

(3) Poika meni veneellä saareen.
 boy go+PST+3SG boat+ADE island+ILL
 'The boy went by boat to the island'.

(4) Isä saapui bussilla.
 father arrive+PST+3SG bus+ADE
 'Father arrived by bus'.

The verbs of (3) and (4) do not directly indicate a transmission of force between entities; they merely report the occurrence of motion. The boy and the father can thus be interpreted either as controlling the action of 'going' and 'arriving' (i.e. they are causing the motion of the vehicles themselves) or not (they are merely sitting in the vehicles, and someone or something else is causing their motion).

In examples like (3) and (4), the interpretation of the adessive-case elements as either instrumentals or locatives does not change the understood spatial relation between them and the subject (i.e. with both readings, the boy is sitting in the boat and the father in the bus). However, true ambiguities may arise if the instrumental and locative readings preclude one another. In these cases, word order may affect the interpretation: in (5) and (6), the noun *saha* is ambiguous between the meanings 'saw' and 'sawmill', and, consequently, the adessive-case adverbial *sahalla* can mean either 'with the saw' (instrument) or 'at the sawmill'

(location) (see also Huumo 1995a, 1995b). In the clause-final position the adverbial most naturally receives the instrumental reading (5), but in the clause-initial position the locative reading is the primary one (6).

- (5) Eero löi Kallea
 name hit+PST+3SG name+PAR
 sahalla.
 saw+ADE / sawmill+ADE
 'Eero hit Kalle with the saw [OR: at the sawmill]'.
 (6) Sahalla Eero löi Kallea
 Saw+ADE / sawmill+ADE name hit+PST+3SG name+PAR
 'At the sawmill [OR: with the saw], Eero hit Kalle'.

Another type of less prototypical instrumentals is the one where the instrument is not volitionally used by the referent of the subject to cause the process denoted by the verb, but where the referent of the subject is itself affected in some way, as in (7)-(9):

- (7) Pekka joutui autollaan kolariin.
 name end-up+PST car+ADE+3PX accident+ILL
 'Pekka got into an accident with [in] his car'.
 (8) Isä sai rahalla nojatuolin.
 Father get+PST+3SG money+ADE armchair+ACC
 'Father got an armchair for [the] money'.
 (9) Olen pysynyt elossa lääkehoidolla.
 Be+1SG stay+PRTC alive medical-treatment+ADE
 'I have stayed alive with [the] medical treatment'.

In (7) Pekka is using the instrument (i.e. driving the car), but he is not volitionally using it to have the accident. In (8) father uses the money to buy the armchair, but the main information is that the amount of money was enough to buy the chair; this sufficiency is not under father's control. Sentence (9) is ambiguous between the reading where the speaker has actively used medical treatment to stay alive (here the interpretation

would be close to that of a prototypical instrument), and the reading where s/he was a passive object of the treatment (s/he might have been unconscious during the treatment, for example). In the latter case the instrumental introduces a cause rather than an instrument, as is usually the case with inanimate subjects.

2.2. Nonprototypical instrumentals

The uses of instrumentals I regard as nonprototypical are those where the referent of the subject is in no sense using the instrument to achieve or cause something (cf. T. Itkonen 1974: 381; 1975: 32-33); the instrument is either used by someone else (who is not introduced in the sentence), or it is not actually used at all, and the sentence merely describes a consequence of its hypothetical use, or, as Verhagen (1986, 150) puts it, "[the domain instrumental] define[s] a 'domain of interpretation', in which the rest of the sentence is said to be valid, without claims to 'the rest of the world'". In these examples, the instrument is thus not transmitting a force from the referent of the subject to another entity, but is transmitting a force "from outside" into the process.

2.2.1. Instrumentals indicating cause

"Cause instrumentals" indicate instruments that cannot be understood to be used by the referent of the subject but only by an external agent. They indicate that using the instrument has as its consequence the whole process introduced in the sentence.² In these examples, the subject may have the role of a patient, and is affected in some way; it may also be inanimate (see below). The action of the subject is nonvolitional. The force may be transmitted from outside entities to the referent of the subject.

² It is also worth mentioning that instrumental cases quite often acquire the function of expressing cause, cf. Blake (1994: 29).

Examples are given in (10) and (11).

(10) Viidellä markalla Olli suutelee käärmettä.
 Five+ADE mark+ADE name kiss+3SG snake+PAR
 'For five marks, Olli will kiss a snake'.

(11) Tuolla puvulla saat selkääsi
 That+ADE suit+ADE get+2SG 'back'+ILL+2PX

kadulla.
 street+ADE

'With that suit, you will get beat up on the street'.

In these examples the adverbial with the adessive case is not instrumental in the same sense as prototypical instrumentals discussed in section 2.1. Its syntactic connection with the nucleus can also be seen as weaker than in prototypical cases. In (10), giving Olli five marks will have the consequence that he kisses a snake; the money is, of course, not an instrument of 'kissing'. In addition, the sentence implicates an external agent, i.e. the one who gives the money. In (11), wearing the suit will have the consequence that the wearer will get beat up on the street.

There are some syntactic properties that distinguish cause instrumentals from prototypical instrumentals. For example, the cause instrumental seems to be able to remain outside the scope of negation in examples like (12):

(12) [Pampersilla eron huomaa].

Niillä Reetan iho ei tunnu
 They+ADE name+GEN skin NEG+3SG feel

nihkeältä.
 clammy+ABL

'With Pampers you see the difference. With [= when using] them, Reetta's [a baby] skin does not feel clammy'. [A TV commercial]

In sentences containing prototypical instrumentals, the negative form denies the use of the instrument (e.g. *Father did not hit the*

stone with a hammer = either no hitting occurred at all, or father did hit the stone but not with the hammer), or at least the particular action indicated by the verb is denied, although there may remain an implication that the instrument was used in some other action (e.g. *With that hammer, father did not hit a STONE but a brick*). In (12), however, the instrumental *niillä* indicates a cause which has the consequence that the baby's skin does not feel clammy. The use of the instrument is not denied here. Quite the opposite: using it brings about the consequence that a given (undesirable) state of affairs does not occur. Semantically the instrumental thus takes a whole (negative) proposition under its scope.

The most curious subtype of cause-instrumentals is the following, which might perhaps be called "anti-instrumental" because of its semantic function in the sentences:

- (13) Reaganin älynlahjoilla Neuvostoliitto
 name+GEN intellectual-power+PL+ADE Soviet-Union

vielä voittaa kylmän sodan.
 yet win+3SG cold+ACC war+ACC

'[Considering] Reagan's intellectual powers, the Soviet Union is probably going to win the Cold War'.

- (14) Tällä linnoituksella ja asearsenaalilla *kukaan*
 this+ADE fortress+ADE and arsenal+ADE (no)body

ei voi komennella minua!
 NEG+3SG can order-about+INF I+PAR

'With this fortress and arsenal, nobody can order me about'.

In (13), the phrase *Reaganin älynlahjoilla* does not introduce any instrument which might be used by the Soviet Union to win the Cold War, but rather a condition which makes it possible for the Soviet Union to win (i.e. Reagan's low intelligence). Example (14) comes from the cartoon "Calvin and Hobbes", where it was uttered by Calvin who was sitting in his new (snow-)fortress. In the predication, the fortress and arsenal thus protect the speaker

from getting ordered about; they are not used by the referent of the subject.

Note also the opposite inferences about Reagan's talents following from (13) and (15):

- (15) Reaganin älynlahjoilla Yhdysvallat
 name+GEN intellectual-power+PL+ADE United-States

vielä voittaa kylmän sodan.
 yet win+3SG cold+ACC war+ACC

'With Reagan's intellectual powers, the United States is going to win the Cold War'.

The instrumental of (15) has a more typical reading than that of (13); in (15), Reagan's intellectual powers are reported to be the instrument that the USA can use to win the Cold War. The inference here must of course be such that his intelligence is high.

The most prototypical occasion where instrumentals receive the cause reading are sentences with inanimate subjects. When an instrumental occurs in such a sentence, the interpretation is highly likely to be such that the instrument precedes the subject in the causation chain, i.e. the subject is a patient and not an agent, and the instrumental implies the existence of an (animate) agent using it. As Chafe (1970: 154) has pointed out, the verbs in these predications are interpreted as simple processes (events), not actions. See (16) and (17):

- (16) Värikynillä piirroksesta tuli
 Crayon+PL+ADE drawing+ELA become+PST+3SG

kaunis.
 beautiful

'With the crayons, the drawing became beautiful'.

- (17) Hyvillä työkaluilla talo valmistuu
 Good+PL+ADE tool+PL+ADE house complete+3SG

nopeasti.
 quickly

'With good tools, the house will go up quickly'.

Sentences (16) and (17) indicate that some entity comes into existence or undergoes a change as a consequence of the use of the instrument. In (16) the crayons are reported to have been used in drawing the picture, but the agent who actually drew it is not mentioned; the sentence merely describes the consequence of the use of the crayons. Similarly, in (17) it is the good tools that make possible the quick completion of a house. The situation in these sentences with inanimate subjects resembles very much that in the sentences with non-agentive animate subjects: the actual agent is left unmentioned and the verbs of the sentences usually do not describe actions but events. In other words, the sentences represent the situation from the point of view of the patient or theme, not from that of an agent.

2.2.2. Instrumentals expressing condition

The type of instrumental with the loosest connection to the nucleus is probably the one where the instrumental phrase merely introduces a condition making it possible for a (hypothetical) event or state to occur. The instrumental introduces the scene or setting of the use of its referent, and the rest of the sentence offers a predication with regard to the consequence of this use. The relation between the instrumental and the rest of the predication is not causal but rather conditional: the instrument does not physically cause the event but its use is a condition for the event to occur. Examples are given in (18) - (21):

- (18) Suomalaisella miehistöllä Estonia olisi
 Finnish+ADE crew+ADE name be+COND+3SG

ohjattu lähtösatamaan.
 steer+PASS+PARTIC port-of-departure+ILL

'With a Finnish crew, the *Estonia* [the car ferry which sank in the Baltic in 1994] would have been taken [back] to its port of departure'. [A newspaper interview]

- (19) Pyörällä se tunneli on ihan kiva.
 Bike+ADE it tunnel be+3SG quite nice
 '[When you go] by bike, that tunnel is OK' [Spontaneous discourse].

- (20) [Kai ne ajattelee, että] veneellä kukaan ei
 [Probably they think that] boat+ADE (no)body NEG+3SG

jää sinne alle.
 get there under

'[They probably think that] by boat, nobody gets run over'
 [Spontaneous discourse; the speaker is trying to explain why islanders rather take the boat than the car when drunk-driving].

- (21) Bussilla et tarvitse parkkipaikkaa.
 Bus+ADE NEG+2SG need parking-place+PAR
 '[Going] by bus, you don't need a parking place' [An advertisement].

Sentence (18) introduces a hypothetical situation whereby the (mainly Estonian) crew of the car ferry were actually Finnish. In (19), a hypothetical situation of riding a bike through the tunnel is being described; within this frame, the tunnel is assigned the property of being OK. In (20), the speaker assumes that drunk-drivers prefer boats to cars because in the frame of using the boat other people are not in the danger of getting run over. In (21) taking the bus is indicated to have the consequence that one does not have to worry about parking problems.

These examples differ from those with cause-instrumentals in that here the instrumental phrase does not introduce merely an entity used to bring about some effect, but rather a condition for the whole hypothetical situation to exist. These cases also differ from the cause-type in that they do not implicate an outside agent for the predication. For example (21) does not

implicate an agent who uses the bus in order to cause an effect on some other entity; rather, the sentence claims that the addressee would benefit in a hypothetical situation where s/he took the bus.

3. Several instrumentals in the same clause?

A further indicator of the loose relation between cause and condition instrumentals and the rest of the predications is the fact that in some cases another instrumental element may occur in these sentences, as in (22)-(24):

(22) Tällä lipulla saat kahvin
This+ADE ticket+ADE get+2SG coffee+ACC

ja pullan kymppiä.
and coffee-bread+ACC ten+ADE

'With this ticket you [can] get a [cup of] coffee and a coffee-bread for ten marks'.

(23) [Liikenneturvallisuus ei ole kuitenkaan heikentynyt,...]

sillä uusilla menetelmillä ja
since new+PL+ADE method+PL+ADE and

uusilla välineillä sama tulos
new+PL+ADE equipment+PL+ADE same result

saadaan nyt pienemmällä suolamäärillä.
obtain+PASS now less+PL+ADE salt-amount+PL+ADE

'[Traffic safety has not, however, declined,] because with the new methods and the new equipment the same result is now obtained with less salt' [A newspaper article on winter traffic conditions].

Proper instrumentals do not usually allow such constructions, see (24)-(25):

- (24) *Moukarilla Pekka löi kiveä
Sledge-hammer+ADE name hit+PST+3SG stone+PAR

vasaralla.
hammer+ADE

- (25) *Kanootilla Pekka meni veneellä saareen.
Canoe+ADE name go+PST+3SG boat+ADE island+ILL

Only if the first instrumental clearly sets up a frame for the use of the subsequently introduced instrument, two prototypical instrumentals are marginally allowed in the same clause, as shown by example (26):

- (26) [IS kertoi eilen kevään muotivillitykseksi muodostuneista ilmapistooleista,]

joilla 10-15-vuotiaat lapset ampuvat
REL+PL+ADE 10-to-15-year-old+PL child+PL shoot+3PL

toisiaan ja ohikulkijoita
each-other+PL+PAR and passer-by+PL+PAR

kovilla muovikuula-ammuksilla
hard+PL+ADE plastic-bullet+PL+ADE

'[Yesterday IS (a newspaper) told about the craze of the spring, airpistols] which 10 to 15 year-old children use for shooting at one another and at passers-by with hard plastic bullets' [Ilta-Sanomat 21.4.1995].

In (26), using airpistols is the dominating frame that includes the subordinated frame of using the bullets within its scope. In this sense, (26) is different from both (24) and (25), where a similar hierarchical relationship cannot be attested.

This possibility of adding another instrumental to the sentence is a clear indicator of a change in the syntactic status of the adverbial, since a clause can typically contain several setting adverbials but not several verb-modifiers of one type (if they are not coordinated) (see also Blake 1994, 72). Thus the semantic relations in sentences like (22), (23), and (26) are such that the rest of the sentence gives a predication about the frame

where the initial instrument is used, and introducing the other instrument does not lead to any contradiction.

4. The position of instrumentals in the "causal chain"

In Croft's (1991) causal order hypothesis sentence structure is studied from the point of view of the causal relations between the entities introduced in the sentence. A prototypical transitive clause introduces a causal relation, typically that of the volitional transmission of force from the (referent of the) subject to the (referent of the) object. This causal process between the entities is indicated by the verb. Entities with different semantic roles have different positions in the causal chain; the basic division, according to Croft, is one between 'antecedent' and 'subsequent' roles, defined with respect to the object in the causal chain (but not necessarily in a "surface" syntactic structure; i.e. the actual ordering of the elements may differ from their causal order).

The position of an entity in the causal chain can be defined as follows: "X precedes Y and Y follows X in a causal chain if and only if there exists a causal segment of the causal chain such that X is the initiator and Y is the endpoint" (Croft 1991:177). Typical antecedent roles include 'means', 'manner' and 'instrument', which precede the object in the chain; typical subsequent roles include 'result', 'benefactive' and 'malefactive', which follow the object. The antecedent roles are further divided into groups according to their relation to the subject. 'Cause' and 'passive agent' are therefore positioned before the subject in the causal chain, and 'comitative' is in the same linear position with the subject; 'means', 'manner' and 'instrument' occur between the subject and the object.

The thematic role 'instrument' in this system is defined as "an entity that is intermediate in the causal chain between the subject (initiator) and the direct object (final affected entity)" (Croft 1991:178). This definition corresponds best to the prototypical instruments in section 3.1. Cause and condition

instrumentals do not accurately meet this definition: in sentences with these types of instrumentals, the processes are not volitional actions but rather events. The position of these instrumentals in the causal chain is likewise not clear. For example in sentence (11) the instrumental ('that suit') does not introduce an entity "intermediate between the initiator and the final affected entity". These instrumentals correspond more closely to Croft's (1991:179) definition of 'cause' than to that of the instrument. In Croft's system, a cause is "an event (action or state) that causally immediately precedes the event sequence denoted by the main verb: for example, *He did it out of love, He died from an overdose / the auto accident*". Of course, the 'suit' of (11) is not the direct physical cause of the effect 'you will get beat up on the street'. The causality expressed in (11) is one where the speaker considers it likely that some property of the hearer's suit will evoke anger in other persons, and that among these persons there will be somebody who will perform a violent action towards the wearer of such a suit. The causation of the violent action by the suit is thus indirect and involves intentional factors. However, this is not to deny that the relation is causal; cf. E. Itkonen (1983: Ch. 2).

In the examples with inanimate subjects in section 2.2.1. the instrumentals also bear a causal relation to the rest of the sentence as a whole, and as the subjects of these sentences are not agents but themes or patients, the interpretation is such that the instrumental implies an animate agent of the process who is not present in the actual clause. These instrumentals are thus separated from the nuclear predication in the sense that they do not introduce instruments used to accomplish the activity denoted by the verb. In other words, in (16) the crayons are not the instrument of 'becoming', nor are the good tools in (17) the instrument of 'being completed'. In the causation chain, these instrumentals thus precede the subjects of the sentences, as there is no agent indicated. If the agent were present in these sentences, the instrumentals would occur between the agent and the theme/patient in the causal chain, as they do in prototypical

transitive clauses. This fact distinguishes these cases from the type with an animate subject where the cause-instrument precedes the whole nucleus, including the agent of the action (as in the Reagan examples and in the suit examples above).

On the other hand, the causal ordering of the cause-instrumental and the implicated agent may vary: in (16) the causal relations are interpreted to mean that the implicit agent uses the crayons to draw the picture and thus precedes the crayons in the causal chain: (IMPLICATED) AGENT > INSTRUMENT > PATIENT. In this sense the causation is quite prototypical, except that the agent is left unmentioned and the element with the semantic function of patient is promoted to the syntactic function of subject. In the example with the suit, on the other hand, the suit causally precedes even the agent who performs the assault of the wearer of the suit, since the suit is not an instrument of assault but the reason for it. The relation thus proceeds as follows: "INSTRUMENT" > (IMPLICATED) AGENT > PATIENT.

Of the three types of instrumentals represented above, condition instrumentals have the loosest causal connection with the nucleus, since they do not introduce causes but conditions. This fact leaves them totally outside the causal chain, just like other setting adverbials.

The positions in the causal chain of these different types of instrumental can be summarized as follows (> = precedes in the causal chain; # = is outside the chain and the verb segment; in the semantic description, parentheses indicate the non-occurrence or optionality of the element in the actual clause structure; in the description, zero (0) indicates non-occurrence in the examples; cf. also Croft 1991: 185):

1) Prototypical instrumental:

semantics:	AGENT >	INSTRUMENT >	PATIENT
syntax:	SUBJECT -	ADVERBIAL -	OBJECT
	'Father hit the stone with a hammer.'		

2) Cause instrumental used by an implicated agent:

semantics: (AGENT) > INSTRUMENT > PATIENT > ...
 syntax: 0 - ADVERBIAL - SUBJECT - ...
 'With the crayons, the picture became beautiful.'

3) Cause instrumental not used by an implicated agent:

semantics: INSTRUMENT > (AGENT) > PATIENT
 syntax: ADVERBIAL - 0 - SUBJ - ...
 'With that suit, you are going to get beat up on the street.'

4) Conditional instrumental:

semantics: INSTRUMENT # PROCESS
 syntax: ADVERBIAL - ...
 '[Going] by bus, you don't need a parking place'.

5. Conclusion

Above it has been argued that Finnish domain instrumentals can be distinguished from prototypical instrumentals in their syntactic and semantic behavior. Syntactically, prototypical instrumentals are verb-modifiers who often occur in a postverbal position, are under the scope of negation, and do not allow other instrumentals in the same clause (if they are not coordinated). Semantically, prototypical instrumentals are situated between the agent and the patient in the causation chain.

In contrary, domain instrumentals stand outside the clause nucleus and resemble setting adverbials. In this paper, their autonomous syntactic status was demonstrated by showing that they typically occur in a sentence-initial position, are able to remain outside the scope of negation, and sometimes allow the occurrence of another instrumental adverbial in the same clause. Their semantic status was studied from the point of view of the causal order hypothesis, and it was shown that in the causation chain introduced in the sentence, domain instrumentals either precede other entities introduced in the sentence (though they may implicate an outside agent who uses them and thus precedes them causally), or do not participate in the causal relation at all

but rather indicate a mental space or frame of their hypothetical use.

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