A Note on Resultative Constructions

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The aim of this paper is to specify (1) what chracteristics resultative constructions and other related constructions in English have, (2) what is the nature of the connections among them, and (3) what is the appropriate semantic description and explanation for them. The paper consists of four sections; in section one the general outline of resultative constructions and connected constructions are described, in section two former studies of resultative constructions are summerized, in section three we give other constructions that seem to bear some relation to them and analyse the relation, and in the final section the summary of appropriate semantic description of resultative constructions is given.

1. Secondary Predications

1.1 the outline of secondary predicates

There are rather marginal constructions that Rothstein (1983) classifies as kinds of secondary predicates. They are called secondary because the subjects of the secondary predicates are arguments of the verbs which governs them and the subjects of the secondary predicates must be assigned a theta-role by another lexical head, (whereas a primary predicate form a constituent with its subject and the constituent is either theta-marked or [+INFL]). In (1) the instances of secondary predications are shown.

(1) a. Lucy made the White Witch furious.
b. The children found Puddleglum interesting.
c. At midnight, Caspian saw the children upset.
d. Boaz hammered the metal smooth.
e. Roni ate the meat raw.

All the above examples have the V-NP-AP form, and clearly (a)~(c) are major constructions in English. The other two are the sentences in question. They are rather off-centered constructions, so judgements by native speakers are far from unanimous. The sentence (d) is called a resultative and (e) a depictive secondary predicate.

Though resultatives and depictives have similar forms in surface, there are several differences between them. Firstly the interpretations are quite different. The resultative sentence means 'Boaz made the metal to become smooth by hammering it'. The AP characterizes the final state of the object NP that results from the action or process described by the verb. The depictive sentence means 'Roni ate the meat, and at the time that he ate it, it was raw.' The AP charicterizes the object NP in relation to the action or process described by the verb and the object NP is characterized at the time of the initiation of the verb's action.

Secondly the sentence final APs are obligatory in resultatives but not obligatory in depictives. In the sentence (1e), the action of the head verb doesn't change with or without the AP 'raw', while in (1d) the action of the verb does change without the final AP. The secondary predicates in depictives are considered as adjucts and those in resultatives either as arguments or as adjuncts.

Thirdly, in depictives, either a subject NP or an object NP can be host NP, though resultative predicates are always object-oriented and cannot be predicate of subject NPs. There are no subject host resultatives in English. The following sentence has only depictive reading.

(2) John ate the meat full

It is interpreted as 'John ate the meat even though he had been full', but not as 'John ate the meat and as a result he became full'.

Fourthly, only a single resultative occurs in a sentence, though two depictives may co-occur in a sentence.

(3) a. *He hammerd the metal flat wide.
b. They eat meat raw tender.

Fifthly, syntactic categories that can enter into resultative predicates are restricted to APs and PPs. Depictive predicates, however, have no such restriction and take APs, PPs, present participles, past participles, and NPs.

(4) a. Mary wiped the table dry / *waxed / *sparkling.
b. Joe broke the vase into pieces / *pieces.

(5) Jenny opened the door wet / in confusion / giggling / exhausted / a stranger

Lastly, it is observed that when a resultative and a depictive co-occur in a single sentence, the depictive must follow the resultative.

(6) a. Bill cut the bread into thin slices hot.
b. *Bill cut the bread hot into thin slices.

1.2 resultatives and depictives

As it has been observed, depictives seem to have fewer re-restrictions and are analyzed as adjuncts. In that respect, resultatives are inconclusive. In the least marginal resultatives (that is, those based on transitive verbs) the sentences are grammatical without the predicates and the predicates modify them like adjunct modifiers. There are, however, other resultatives that turn to be unacceptable or ungrammatical without the predicates.

(7) a. The gardener watered the tulips flat.
(The gardener watered the tulips)
b. Charlie cooked the food black.
(Charlie cooked the food)

(8) a. Fred cooked the stove black.
(Fred cooked *the stove / on the stove)
b. Bill shaved his razor dull.
(Bill shaved *his razor / with his razor)

The above examples are based on transitive head verb, though the verbs in (8) do not usually take these NPs as direct objects but as oblique objects, so the sentences turns to be unacceptable if the predicates are taken.

The following examples are based on intransitives; in (9) the sentences have a reflexive and a body part of the subject NP for its object NP respectively, and in (10) the examples have objects NPs that are noncoreferential with the subjects. All of them become completely ungrammatical without resultative predicates.

(9) a. Charlie laughed himself silly.
(Charlie laughed (*himself))
b. Jo screamed her head off.
(Jo screamed (*her head))

(10) a. ?The rooster crowed the children awake.
(The rooster crowed (??to / at the children))
b. ??The boxers fought their coaches into an anxious state.
(The boxers fought (*their coaches / for their coaches))

The above examples show that a resultative construction may force its head verb to take what is not included its argument structure in the direct object position, and the resultative predicate guarantee

the NP. Resultatives that seem to be adjuncts in the legitimate transitive sentences or earliest derivative forms are necessary arguments in the marginal sentences and change the syntax of the sentences.

2. Previous Theories

The above data illustrate several properties of resultatives. Resultatives always have V-NP-AP/PP configulation. Their interpretation is that a subject NP caused an object NP to become the state described by AP or PP by means that its head verb describes. The status of resultative predicates seems to be ambiguous. In sentences headed by transitive verbs, object NPs are theta-marked and case-assigned by the verbs, so resultatives supplementarily assign theta roles to those object NPs, and thus they are analysed as adjuncts. On the other hand, in sentences headed by intransitive verbs, NPs in object NP positions are not theta-marked nor case-assigned by their head verbs, they are theta-marked and garanteed their occurance solely by resultatives, so in those cases resultatives seem to be arguments.

2.1 Rothstein (1983)

In the paper it is claimed that secondary predicates are adjuncts. Adjuncts XPs are never theta-marked so they never are arguments and always require to be predicated of a subject. She stipulates the property of secondary predicates as in (11).

(11) X is a secondary predicate of Y if and only if Y is an NP theta-marked by a lexical head other than X

Resultatives are selected by the verbs, and she characterises the verbs as follows: the verbs should describe a change of state occuring to the patient argument. The predicate describes the state which the verb causes and predicates this of the object.

2.2 Tsuzuki (1989)

It is strongly argued that resultative predicates are arguments that are selected by the verbs. If resultatives are arguments, then it explains the fact that they appear only in restricted verb classes, only one resultative occurs in a sentence, they are represented by regular syntactic configurations, there are various selectional restrictions on them, and the reason that they occupy argument positions in Jackendoff's conceptual structure. She also distinguishes what she calls pseudo-resultative predicate (intransitive verb based resultative) from resultatives. Pseudo-resultatives are derived from resultatives. Resultative functions as a model and pseueo-resultative follows subcategorization of the model and the frame of the verb in the pseudo-resultative is re-structured so that pseudo-resultative is derived.

2.3 Rapoport (1990)

In the paper resultatives and depictives are taken up so that different readings between them are attributed to the difference in semantic structures not in their syntactic structure for they have identical syntactic structures, and thus it provides the evidence that syntactic structure is projected from semantic structure, especially from lexical conceptual structure (LCS). It is argued that in resultative constructions, verbs and resultatives have no direct relations, both predicates are predicates of each subject. Object NPs are not directly connected to their head verbs but to verb and resultative predicate complexes.

This indirect verb and resultative predicate relations are analysed in various ways. Dowty (1979) and Simpson (1983) think them to be complex verbs and Bolinger (1971) discontinuous lexical items. Rapoport, following Levin & Rapoport (1988), claims resultaves are complement of verbs and parts of argument structure of the verbs.

Rapoport specifies verbs that may take resultative as its comple-

ment as follows. As for intransitive verbs only unergative verbs, not unaccusative verbs may construct resultative constructions.

(12) a. I laughed may head off. (unergative)
b. *I arrived myself sick. (unaccusative)

This difference may be followed from the long-noticed fact that unaccusative has an NP in its object position in D-structure and it moves to surface subjects position in order to receive CASE, whereas unergative has an NP originally in its subject position. The reason that unaccusative verbs do not form resultatives seems to be that unaccusatives cannot assign objective CASE or do not have proper object position in S-structure.

It is argued that a limited class of transitive verbs may make resultative construction. The restriction, following Simpson's observation, is that the head verbs of transitive resultative must have contact with or effect on its object NP.

(13) a. *I shot at the wolf dead.
b. *Medusa saw the hero stiff.

When a verb falls into either class of verbs, a process of lexical subordination may change the verb's LCS. This process causes a basic LCS of a verb to subordinate LCS of means or manner.

(14) $wipe_1$: [x 'wipe' y] (basic LCS)
$wipe_2$: [x CAUSE [y BECOME (AT) z] *BY* [x *'wipe'* y]]
(LCS of means)

It is summarized that (1) a resultative is an argument and selected by a head verb for its complement, (2) only unergative verbes and a class of verbs that have contact or effect on its direct object may select resultatives, and (3) when a resultative is selected, then the verb's LCS is subordinated into LCS of manners and in

doing so a new variable z is introduced and the process provides a position to an NP which is inflicted contact or effect.

2.4 Jackendoff (1990)

Jackendoff clearly states a direct object NP and a predicate AP or PP are adjuncts and not part of the verb's argument structure. He suggests two conceptual structure for resultative constrction. These conceptual structurs then are related to surface syntax via Adjunct rules.

(15) conceptual structure of resultative construction

a. predicate AP

$$\begin{bmatrix}\text{CAUSE ([X], [GO ([Y], [TO [Z]])])} \\ \text{[BY [F ([X])]]}\end{bmatrix}$$

b. predicate PP

$$\begin{bmatrix}\text{CAUSE ([X], [INCH [BE ([Y]), [AT [Z]])]])} \\ \text{[BY [F ([X])]]}\end{bmatrix}$$

(16) Adjunct rule

$$\begin{bmatrix}[_{VP}V_h\ NP_j\ AP_K] \text{ may correspond to} \\ \text{CAUSE } ([\alpha], [\text{INCH } [BE_{Ident} ([\beta], [\text{AT } [\ ]_k])]]) \\ \text{AFF}^- ([\ ]^{\alpha}_i, [\{\alpha\}]^{\beta}_j) \\ \text{[BY [AFF}^- ([\alpha], \{[\beta]\})]_h]\end{bmatrix}$$

Alternatively the Adjunct rule induces the above conceptual structure from a verb in V-NP-AP/PP configuration. The Adjunct rule makes clear that resultative constructions and ordinary causative inchoative verbs provide identical positions for Agent, Theme and reference object. As a result, when a verb that is not a causative inchoative is framed into the syntactic configuration for causative, then the lexical meaning of the verb is combined with the conceptual meaning of causative.

Jackendoff's analysis could be summarized as follows, (1) not only resultative predicates but also object NPs are adjuncts, (2) the configuration of V-NP-AP/PP is fed into the Adjunct rules and the interpretation of resultatives is given, and (3) aside from the configuration, the description in the Adjunct rules functions as a kind of selectional restriction, so [AFF^{-}([ ], [ ])] selects only verbs which take Patient as its argument.

3. Alternative Approach

The major problem or, if it is looked the other way round, the most interesting aspect in resultative constructions is that resultatives may force its head verb to take an object NP which is not a participant in its argument structure. It also changes its interpretation into causative reading. As Jackendoff has pointed out that those adjuncts (in his analysis) are not ordinary adjuncts which do not change the syntactic structure determined by the verbs but they override the structure of the VPs and determine the syntax of the VP.

The evidence that newly constructed resultstive constructions come to acquire causative conceptual structure is illustrated by the following facts. There is so-called middle construction in English:

(17) a. Ben broke the glass.
b. This glass breaks too easily.

A sentence headed by a transitive verb is sometimes converted into an intransitive one, the object NP is moved to subject position in the intransitive, and its interpretation turns to be something like passive. Transives verb which may be changed into middles are restricted by affectedness condition. Affectedness is a property observed by Anderson (1977). It is the property of a verb of denoting an event in which the entity denoted by the direct object of the verb undergoes some change of state or location. This

property also constrains the possible NP passives and possible null object with an arbitrary interpretation in Italian. As is predicted by the condition, in (18) non-affecting verb 'kick' does not turn into middle.

(18) a. Jane kicked a large bear.
b. *Large bears do not kick easily.

As we can see from the above, this property is linguistic. We are inclined to think the action 'kick' impose some change of state of location to object NP due to our real world knowledge, but linguistically the verb doesn't. Yet this unaffecting verb 'kick' can be converted into middle, when it is framed into resultative construction :

(19) a. John kicked a large bear unconsious.
b. Large bears do not kick unconsious easily.

Thus in resultative constructions, head verbs, together with resultative predicates affect its object NPs. It follows then that input verbs into resultative construction may or may not be an affecting verb, but the output verb and resultative combination always affects its object NP.

Simpson, Jackendoff and others claim that in well-formed resultatives, the direct object of the verb must be a Patient in the argument structure of the input verb. This patienthood is defined as a notion that indicates an entity affected by action. Affectedness and patienthood seem to be very close, if not identical, idea. Pseudo-cleft construction is used as a diagnostic for patienthood :

(20) a. The gardener watered the tulips flat.
b. What happened to the tulips was the gardener water them.
c. What gardener did to the tulips was water them.

(21) a. ?The rooster crowed the children awake.
b. ??What the rooster did to the children was crow.

(22) a. Charlie laughed himself silly.
b. *What Charlie did to himself was laugh.

Jackendoff argues that in cases where patienthood in the means clause is less plausible, the resultative is less plausible as well, and intransitive verbs with a reflexive or a body part NP are exceptional, that is, they are odd in patienthood test but well-formed as resultative construction. The analysis seems to be the other way round. As we have stated above the head verb itself not necessarily assign patient roll to the following NP but the resultative construction is the process that forcibly assign patient roll to its object NP by the combination of a verb and a resultative. So object NPs in resultatives pass patienthood test :

(23) a. Rebecca knocked the elephant unconscious.
b. ?What Rebecca did to the elephant was knock it.
c. What Rebecca did to the elephant was knock it unconscious.

In addition to that, there are verbs that pass patienthood test but cannot form resultatives :

(24) a. I lit the match.
b. What I did to the match was light it.
c. *I lit the match smoky / hot / black.

What is more, the patienthood restriction cannot spicifies intransitive verbs that can form resultatives, for they have no Patient role nor an NP inflicted contact or effect in its argument structure.

It has been pointed out the construction it question has some relation to causative construction or is constructed after causative

as its model. Causative affects its object NP and change state of the object NP into state described by the final AP or PP. This constructional meaning requires of all the participants in a causative sentence that the verb includes in its meaning force directed from its subject NP to its object NP, the object NP is entity possible to be changed or controled to be changed by its subject NP, and the goal of the changing must not be included in the meaning of the head verb but can be described by AP or PP. It follows that the most appropriate verbs for resultatives are verbs that are at the same time transitive, action verb, and activity or process verb. Intransitives have no entity possible to be affected in its argument structure. Stative verbs do not include in the meaning volitional control by its subject NP. Achievement verbs include its goal or final state in the meaning of the verb itself.

There are, however, another model and another mental mechanism that make it possible for intransitives to enter into the resultative construction. Causative verbs were histrically formed from intransitive verbs by vowel or consonant alternation. In modern English some verbs has retained the alternation (i. e. lie–lay, sit–set, fall–fell, rise–raise, drink–drench, and so on). Intransitives were changed into causatives and turned to take an object NP that was not in its argument structure. The object NP is constrained to be an entity possible to be changed by its subject NP, and originally action intransitives have only one participant, that is the actor of the action. The most susceptible entity to the actor's influence is actor himself or part of the actor. The development of this process is seen from the following sentences.

(25) a. John is lying on the grass.
b. John laid himself on the grass.
c. John laid the basket on the grass.

Intransitives have no affectable entity in its lexical conceptual

structure, yet controlable entity can be retrieved from knowledge about the action in question. The knowledge, as is suggested by Jackendoff, might be contained in the lexical entries for the verbs in the form of 3D model representation.

4. Summary

The resultative construction has a definite syntactic configuration, that is V–NP–AP/PP. Its interpretation is uniform. The subject NP brings about the action described by the verb, the action directly affects the object NP, and the object NP ends up with the state described by AP or PP. The interpretation and constructional frame of resultatives are modeled on those of causatives.

The construction frame forces us so strongly to have the above interpretation that not linguistically encoded participants can take part in the construction if the whole meaning added up by each participant of a sentence does not deviate from the typical interpretation. The resultatives extend from transitive verb based ones to non–object–taking–verb based constructions. The extension introduce a new argument to the argument structure of a verb or put an argument (originally included in linguistic conceptual structure) to different syntactic position.

This extension seems to be based on and made in accordance with our knowledge of the action that is not contained in linguistic conceptual structure. Aside from our semantic knowledge, the extension appears to have another model, that is intransitive verbs' alternation process with causatives.

References

Anderson, M. (1977) "Transformations in Noun Phrases," ms., University of Connecticut.

Bolinger, D. (1971) The Phrasal Verb in English. Harvard Vniversity Press, Cambridge, Massachusetts.

Chomsky, N. (1986) Knowledge of Language. Praeager Publishers, New York, New York.

Dowty, D. R. (1979) Word Meaning and Montague Grammar. Reidel, Dordrecht.

Jackendoff, R. S. (1990) Semantic Structures. MIT Press, Cambridge, Massachusetts.

Levin, B., and T. R. Rapoport. (1988) "Lexical Subordination," In Papers from the Twenty-fourth Regional Meeting of the Chicago Linguistics Society, University of Chicago, Chicago.

Rappoprt, T. R. (1990) "Secondary Predication and the Lexical Representation of Verbs," In Machine Translation 5, Kluwer Academic Publishers.

Rothstein, S. (1983) "The Syntactic Forms of Predication," Doctoral dissatation, MIT, Cambridge, Massachusetts.

Simpson, J. (1983) "Resultatives," In Papers in Lexical-Formation Grammar. Bloomington, Indiana.

Tsuzuki, M. (1989) "Kekka no Nijiteki Jutugo to sono Kakutyou." The English Teachers' Magazine.

Vendler, Z. (1967) Linguistics in Philosophy, Cornell University Press, Ithica, New York.