Tsukuba English Studies (1996) vol. 15, 23-42

Another Look at *Taking* in Lexical Network Theory*

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1. Introduction

The verb *take* expresses different senses, as shown by the following examples:

(1) Let me take your coat.

(2) Mark took his books to Bee's house to study.

(3) She took me to a Mexican restaurant. (*COBUILD* 1st edition)

Norvig and Lakoff (1987) present an analysis of polysemous *take* in the network theory, in which a central sense is linked by a minimal difference to another, which is linked to still another and so on. In the present paper, I will show some problems apparent in their analysis and propose an alternative in the same theoretical framework. The essential claim to be made is that two schemata are indispensable for the verb at issue.

We will proceed as follows. Section 2 looks over the outlines of Norvig and Lakoff (1987) and points out the problems with their analysis. Section 3 gives a detailed discussion on the *take+a+V* construction in which the object of *take* is a verb stem which is the same form as the infinitive. Such a construction is to complement partially the data Norvig and Lakoff deal with, but the analysis of it, as it will appear, is crucial to capture the full range of the senses the verb *take* represents. Section 4 provides an alternative to Norvig and Lakoff's network model. Section 5 gives concluding remarks.

2. Norvig and Lakoff (1987)

2.1 Outlines

Norvig and Lakoff argue that the verb *take* should be treated as a polysemous word, giving the following examples:

(4) John took the book from Mary.

(5) John took the book to Mary.

(6) John took the book to Chicago.

(7) John took a punch at Harry.

(8) John took a punch from Harry.

(9) John took Mary to the theater.

(10) John took a whiff of the coffee. (p.196)

They refer to senses (4) to (10) as *take-1*, *take-2*, *take-3*, *take-4*, *take-5*, *take-6*, and *take-7*, respectively. They argue that *take-1* is a central sense and each of the other senses can be seen as a minimal variation, either of the central sense or of another sense in the network. Let us look at them one by one and examine how each sense is linked to another sense.

In the sentence with *take-1*, the subject is assigned a semantic role of Agent, which is defined as an actor or causer of an action. In addition, s/he also plays the role of Recipient, who receives the patient, that is, the book, which is an object acted upon by the agent:

(11) John took the book from Mary. (=(4))

Take-2 is a minimal variant of *take-1*. The minimal difference is that in *take-2*, the agent is not the recipient as in *take-1*:

(12) John took the book to Mary. (=(5))

Since the recipient Mary is at the destination, the agent John must move to her.

Norvig and Lakoff distinguish participants such as Agent, Patient, Source (the person who initially has the patient), Recipient, and so on, from settings like Origin (the location where Patient started out), and Destination (the location where Patient ends up). *Take-3* is a minimal variant of *take-2* :

(13) John took the book to Chicago. (=(6))

In *take-2*, Participants (Source and Recipient) rather than Settings (Origin and Destination) are normally profiled, whereas in *take-3* Destination is profiled.

Take-4 is linked to *take-2* via a metaphorical linking. The metaphorical mapping is shown below:

(14) John took a punch at Harry. (=(7))

Source domain: taking		Target domain: performing a quick forceful action
Agent	——————>	agent
Patient	——————>	quick, forceful action
Recipient	——————>	patient

A quick, forceful action is metaphorically understood as an object transferred from the agent to the patient.

Take-5 differs from *take-4* in that the result, the fact that the punch reaches the individual John, is profiled:

(15) John took a punch from Harry. (=(8))

In *take-4*, on the other hand, such a result is not guaranteed.

Norvig and Lakoff consider *take-6* as in *John took Mary to the theater* as

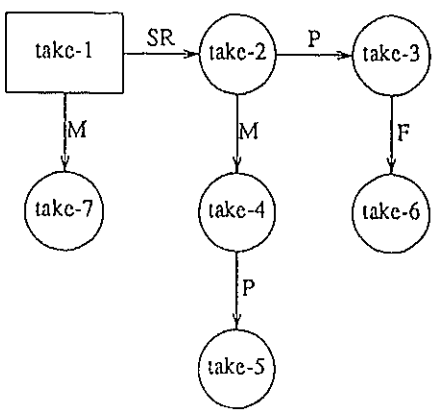
involving a metonymy, that is to say, when "we say she went to the theater, we normally mean that she not only went there, but that she did what a member of the audience typically does at the theater"(p. 202). Going to a destination, D, stands metonymically for doing a conventional activity, C, which they call Going-to-D Schema. *Take-6* is thus linked to *take-3* by frame addition.

Take-7 is found in expressions such as *take a whiff, take a sniff,* and *take a look.* They treat this sense of the verb as a metaphorical extension of *take-1,* which elaborates a general metaphor PERCEIVING IS RECEIVING. They provide the metaphorical mapping as follows:

(16) Source domain: receiving Target domain: perceiving
Patient ——————> Percept
Agent/Recipient ——————> Perceiver
Instrument ——————> Sense organ
Receiving ——————> Perceiving
Patient moves to Recipient —> Percept moves to perceiver
Recipient has Patient + Patient is available for Recipient's use
——> Perceiver has percept available for use

Thus, their conclusion is schematized with the link-types as in (17):

(17) 1 to 2: semantic role differentiation (SR)
2 to 3: profile shift (P)
2 to 4: metaphor (M)
4 to 5: profile shift (P)
3 to 6: frame addition (F)
1 to 7: metaphor (M)



(p. 205)

2.2 Problems

Norvig and Lakoff's network model of *take* has some problems to be considered. First of all, *take-5* is not sure to be a minimal variant of *take-4* as they argue:

(18)(=(14)) John took a punch at Harry.

(19)(=(15)) John took a punch from Harry.

Although in both of these examples, *a punch* is metaphorically understood as an object that is moved by John's punching or Harry's punching, it moves in opposite directions: In *take-5*, it moves from Harry to John, whereas in *take-4* from John to Harry. This fact indicates that the semantic roles of *John* and *Harry* in the former are different from those of the latter. This gives rise to the following questions: Can *take-4* and *take-5* be linked by a semantic role differentiation rather than a profile shift?; Does a certain link-type have priority over others? In Section 4, we will discuss these problems in detail.

The second problem lies in *take-7* (repeated here in (20)). Norvig and Lakoff argue that *take-7* is a metaphorical use of *take-1*, and that it is a special case of the general metaphor PERCEIVING IS RECEIVING.

(20) John took a whiff of the coffee.

This argument seems to prevail in the expressions they give like *take a whiff*, *take a sniff*, *take a look*, and *take a glance*, in which the object of *take* is a verb stem of a perception verb. The general metaphor, however, does not suffice to give a coherent account of the behavior of perception verbs in respect of the cooccurrence with *take*. In fact, it remains unclear how they could deal with such an expression as **take a listen to a radio* by means of the general metaphor, where the verb *listen* itself is an impeccable perception verb.

The third problem, which arises from the second one, is that the data coverage is insufficient: Verb stems other than those of perception verbs can be combined with *take*. For example, we can say *take a walk*, *take a stroll*, and *take a pee*. An adequate explanation of the polysemous verb *take* is required to take into consideration such types of expressions as well.

In the next section, we will examine *take+a(n)+verb stem* sentences (which are henceforth called *take+a+V* sentences, or the *take+a+V* construction) in detail and discuss which verbs have *take+a(n)+V* counterparts.

3 The *Take+a+V* Construction

3.1 General Characteristics

The *take+a+V* construction is an expression, as mentioned briefly in the previous section, in which *take* is combined with a verb stem preceded by an indefinite article, whose form is the same as the infinitive. Examples are shown in (21) and (22):

(21) She took a bite of apple, and said....
(T. Capote, *Breakfast at Tiffany's* p.24)

(22) I'd like to reach Salisbury in good time to take a look at the city's many charms. (K. Ishiguro, *The Remains of the Day*, p.69)

As Wierzbicka (1982;1988) and Dixon (1991) observe, some restrictions are imposed on this construction: (i) The subject is exclusively human; (ii) The person referred to by the subject is also the actor of the action described by the verb stem. Sentences like (23) are not allowed into it, because the person who does the punching is not John but Mary:

(23) John took a punch from Mary.

In such cases, *take* is understood to occur with a deverbal noun, which happens to be identical with the stem of the infinitive.

To specify the verbs which can occur with the construction under consideration, constraints imposed on *a+V* should be distinguished from constraints put on the construction, because the form *a+V* can be seen not only in the *take+a+V* construction but also in other constructions such as the *have+a+V* construction and the *give+NP+a+V* construction, as exemplified in (24) and (25):

(24) have a bite/ a drink/ a look (at)/ a run (Wierzbicka (1982;1988))

(25) a. John gave the eggs a beat.
b. John gave the system a try. (Kearns (1990))

This fact leads us to the assumption that the verbs which can appear in *a+V* of these three constructions must have some common property, and that some constraint must be further imposed on the verbs which are eligible to *a+V* by the semantic differences between the main verbs. The next section will postulate semantic rules which predict which verbs can fill the position.

3.2 *A+V*

3.2.1 Nakau (1994)

Nakau argues that propositions can be divided into three subclasses, STATE, PROCESS, and ACTION, and that ACTION is distinguished from STATE and PROCESS,

because verbs of the latter two classes can be found to occur in the *there*-construction, in the split-subject construction, and in the sentence-final subject construction, whereas no ACTION verbs are compatible with them. To elucidate his argument, Nakau presents the following examples:

(26) a. There stands in the corner of the room an old file cabinet.
b. There followed a long period of peace and prosperity.
c. *There sneezed a man.

(27) a. Plans are ready for a long struggle.
b. A woman entered the room who was wearing a fur coat.
c. *A bullet killed the animal which was fired from the rifle.

(28) a. To our left lay the Mississippi River.
b. In went the sun and down came the rain.
c. *In the gymnasium exercised our basketball team.

As the contrast between (26a,b) and (26c) shows, the verb of STATE *stands* and that of PROCESS *followed* are permissible to the *there*-construction, but the ACTION verb *sneezed* is not (we leave aside the criteria which separate STATE from PROCESS here). The same pattern holds for the contrasts between (27a,b) and (27c) and between (28a,b) and (28c). The verb of STATE *are*, and that of PROCESS *entered* are allowed to fill the verb position in the split-subject sentence, while the ACTION verb *killed* is not. The sentence-final subject construction admits the STATE verb *lay*, and the PROCESS verbs, *went* and *came*, to occur with it, but excludes the ACTION verb *exercised*.

Now let us turn to the *take+a+V* construction. The tripartite distinction between propositions considered, it should be first noticed that verbs compatible with *a+V* can neither be included in the class of STATE verbs nor in the class of PROCESS verbs. It follows that they are subsumed under the class of ACTION verbs. However, not all the ACTION verbs are licensed to occupy the position, as (29) shows:

(29) take a walk/ a bite of apple/*a build of a house/*a kill of a bird

In order to specify the feature of the verbs of ACTION which can enter the *a+V* frame, their aspectual properties should be investigated in line with Tenny (1994).

3.2.2 Tenny (1994)

Tenny argues that the direct internal argument (which is an object of the verb) plays a fundamental role in aspectual structure: It can "measure out",

in the sense of Tenny, the event described by the verb. With a view to explicating this, Tenny draws a clear distinction between the direct internal arguments which "measure out" the event and other direct internal arguments which do not, the indirect internal argument (the object of a preposition), and the external argument (usually the subject). For convenience of explanation, the direct internal argument with this function will be called Delimiter. Consider the following examples ((30) and (31) are cited from Tenny (1994)):

(30) Mary built a house (in a day/*for a day).

(31) Mary drank a jug of apple wine (in an hour/*for an hour).

(32) Mary drank water (*in an hour/ for an hour). (cf. Tenny (1994))

The choice of the *in* + a temporal phrase over the *for* + a temporal phrase, as (30) and (31) substantiate, proves that the direct internal arguments, *a house* and *a jug of apple wine* function as Delimiters. By contrast, in (32) *water* is not a Delimiter, since the temporal phrase *for an hour* rather than *in an hour* is sorted out.

3.2.3 Constraints on *A+V*

As might be predicted from the discussion in the previous section, the verbs of Action which are followed by a Delimiter cannot occur in the *take+a+V* construction, while those followed by no Delimiter can. Compare the following pairs:

(33) a. Mary built a house (in a day/*for a day). (=(30)

b. *Mary took a build of a house.

(34) a. Mary drank a jug of apple wine (in an hour/*for an hour). (=(31))

b. *Mary took a drink of a jug of apple wine.

(35) a. Mary drank water (*in an hour/ for an hour). (=(32))

b. Mary took a drink of water.

(36) a. John walked in the park (*in an hour/ for an hour).

b. John took a walk in the park.

Based on this fact, I argue that the possible verbs must have no Delimiter following them. Thus, the constraint imposed on *a+V* is summarized as in (37):

(37) The verbs which occur with *a+V* are subsumed under Action with no Delimiter following them.

Note that constraint (37) is also available for the specification of the possible verbs which appear in the *a+V* position of the *have+V* construction and the *give+NP+a+V* construction. Verbs used in the position do not meet the three

tests discussed in 3.2.1, the *there*-construction, the split-subject construction, and the sentence-final subject construction. Examples (38) and (39) show that *bite, drink,* and *look at* in (24), and *beat* and *try* in (25) are not sanctioned to occur with the *there*-construction. As (40) and (41), and (42) and (43) display, those verbs also fail to occur in the split-subject construction and the sentence-final subject construction.

(38) a. *There bit apples a little boy.
b. *There drank water a man.
c. *There looked at a picture a strange man.
d. *There ran in the park an old man.

(39) a. *There beat the eggs a newly married couple.
b. *There tried the system an engineer.

(40) a. *A boy bit apples who was wearing a hat.
b. *A man drank water who was running around.
c. *A strange man looked at a picture who had dull eyes.
d. *An old man ran in the park who looked excited.

(41) a. *A newly married couple beat the eggs who moved in.
b. *An engineer tried the system who had gray hair.

(42) a. *In the kitchen bit apples my little brother.
b. *On the road drank water John's uncle.
c. *In the gallery looked at a picture Mary.
d. *In the park ran our students.

(43) a. *In the dining room beat the eggs Mr. White.
b. *In the office tried the system our boss.

Examples (44) and (45) demonstrate that the verbs in question have no Delimiter, because in both instances the *for* + a noun phrase is chosen for a proper temporal expression:

(44) John bit apples/ drank water/ looked at a picture/ ran in the park for/*in a few minutes.

(45) John beat the eggs/ tried the system for/*in twenty minutes.

These facts above serve to support our claim that the verbs which can occur in the *a+V* position of both constructions are included under (37).

However, as suggested in 3.1, the verbs which satisfy (37) can not always have a guarantee on the three constructions including the *take+a+V* construction. Take, for example, *laugh* and *drink*. The former can appear exclusively in the

have+a+V construction, and the latter in all the constructions except the *give+NP+a+V* construction. Examples are as follows:

(46) a. John had a laugh with Mary.
b. *John took a laugh with Mary.
c. *John gave Mary a laugh. (cf. Dixon (1991))

(47) a. John had a drink.
b. John took a drink.
c. *John gave the bottle a drink.

To account for these facts, we should postulate that the three constructions have some constraint which determines the verbs at issue by appealing to the semantic differences between the main verbs. The examination of such constraints on the *have+a+V* construction and the *give+a+V* construction, however, is beyond the scope of the present paper.

Now let us go into the discussion as to what constraint is on the *take+a+V* construction. Perception verbs such as *look (at)* and *glance (at)* make a sharp contrast with other perception verbs like *listen (to), stare (at),* and *watch* as respects the occurrence in the construction. The former are admitted into it, but the latter are not, though they are all brought under criterion (37):

(48) John took a look at a picture.
(49) John took a glance at a picture.
(50) *John took a listen to a radio.
(51) *John took a stare at a picture.
(52) *John took a watch of TV.

These facts illuminate the confirmed assumption that some semantic characteristic of *take* plays a relevant and crucial role to make a list of the verbs in question. To explore them, we should become aware of the peculiarity of this construction that not only *take* but also the verb stem describes an action. This implies that the action expressed by *take* does not conflict with the action by the verb stem in some sense. Put differently, there must be some common semantic feature which must relate to the meaning of a given verb and the meaning of *take*. In the next section, we will examine such a semantic feature in detail, and provide some constraint on the construction.

3.3 Constraints on the *Take+a+V* Construction

3.3.1 *Take*

The semantic property of *take* can be divided into two subclasses with

respect to the cooccurrence with the verb stem in the *take+a+V* construction: One is to denote an action in which a person referred to by the subject takes a thing(s)/a person(s) which is outside of his/her domain to his/her domain; The other is an action where a person takes a thing(s)/a person(s) which is inside of his/her domain to the outside of it. Consider the following examples:

(53) John took the book from Mary.

(54) John took Mary to the theater.

(55) John took the book to Mary/Chicago.

The sentence in (53) describes the action that John took the book, which is outside of his domain, to his domain (e.g. into his possession). John in (54), on the other hand, took Mary, who is psychologically conceived of as being inside of his domain, to the outside of it, that is, to the theater. The same explanation applies in the instance of (55): John took the book, which is inside of his domain (e.g. in his possession), to the outside of it. For clarity of exposition, we call the semantic properties shared by sentences such as (53) TAKE x FROM y and those which are shared by (54) and (55) TAKE x TO y.

3.3.2 Constraints on the Construction

Turning now to the *take+a+V* construction, the verbs which can be used with it must have TAKE x FROM y or TAKE x TO y as a semantic feature, which is illustrated in (56) and (57):

(56) TAKE x FROM y: bite, drink, lick, smell, sniff...

(57) TAKE x TO y: (a) jog, ride, run, stroll, swim, walk...

(b) glance (at), look (at), pee...

Verbs such as *bite, drink, lick, smell,* and *sniff* display an action in which a person takes a thing which is outside of the subject's domain (the physical body) to his/her domain (in particular the mouth/nose). Intransitive verbs such as *jog, ride, run, stroll, swim,* and *walk,* on the other hand, are construed as a person's going outside of his/her domain. Suppose you are in your house and have a plan to take a walk in the park. In such circumstances, the subject's domain is understood as his/her house. Or if you are in the park to take a walk there, the domain is where you are before taking a walk. In the case of (57b), the subject stays in his/her domain (the physical body), "pee" or metaphorical eyes going out of it.

We are now in the position to explain the unacceptability of (50) to (52) (repeated here in (58) to (60)):

(58) *John took a listen to a radio.

(59) *John took a stare at a picture.

(60) *John took a watch of TV.

The actions described by such verb stems are in conformity neither with TAKE x FROM y nor with TAKE x TO y. The verb phrase *listen to* refers to the action in which the subject makes an effort to hear something, staying in his/her domain (the physical body). The acoustic stimulus enters it (that is, it comes to his/her ears), but such an event has nothing to do with the subject's volition to do his/her action in question. Conceptually, the subject makes no effort to take the sound outside of the domain to his/her domain, but staying in it, s/he does make an effort to hear the sound.

The verb *watch* is, as Nakau (1994) points out, distinguished from *look at*: The former is characterized by the two parameters *contact* and *intentionality*, but the latter by the parameter *intentionality* only. This seems to be supporting evidence for the difference of the acceptability between (60) and (48). The verb phrase *stare at* is, however, classified into the *look at* type, in the sense of Nakau, which suggests that (59) could be converted into an acceptable sentence. The point to be considered is that in (48) and (49), the moving of x (eyes) across the domain is profiled, whereas in (59) and (60), the resultant state of moving x, not the process of causing to move x, is in focus, whether the parameter *contact* is held or not. Thus, in the latter case, it can be said that the action is done inside one domain with no x crossing the domain, or at least with the event that x crosses the domain unprofiled.[1]

To conclude, the constraint imposed on the *take+a+V* construction is (61):

(61) The verbs which abide by (37) must have as a semantic property TAKE x FROM y or TAKE x TO y.

4. An Alternative

Based on the discussion in the previous sections, we first examine the various senses of the verb *take* with respect to the conceptual structure they share, and then discuss the relationships among those which hold a shared conceptual structure in the network approach.

4.1 Two Conceptual Structures

Let us consider examples (62) to (71):

(62) John took the book from Mary.

(63) John took the book to Mary.

(64) John took the book to Chicago.

(65) John took a punch at Mary.

(66) John took a punch from Mary.

(67) John took Mary to the theater.

(68) John took a glance at/ a look at a picture.

(69) John took a bite of apple/ a drink of water.

(70) John took a jog/ a stroll/ a ride/ a walk.

(71) John took a pee.

We will call the senses of *take* in (62) to (71) *take-1*, *take-2*, *take-3*, *take-4*, *take-5*, *take-6*, *take-7*, *take-8*, *take-9*, and *take-10*, respectively. In examining various senses of a verb and their relationships, the senses involved should, as Iwata (1995) proposes, be divided into two subclasses: (i) Those which function in the spatial domain; (ii) Those which function in the psychological (metaphorical) domain. With this classification, *take-1*, *take-2*, *take-3*, and *take-6* participate in the spatial domain, and *take-4*, *take-5*, *take-7*, *take-8*, *take-9*, and *take-10* enter the psychological domain.

4.2 The Spatial Domain

In this section, we discuss, following Jackendoff (1983; 1990), the conceptual structure of spatial senses of *take*, in order to capture the way they are related to each other.

The sentence with *take-1* (repeated here in (72)) has a conceptual structure represented as in (73):

(72) John took the book from Mary.

(73) $[\text{CAUSE}_{\text{entrain}^+}$ ([JOHN], [GO ([BOOK], $\begin{bmatrix} \text{FROM ([MARY])} \\ _{\text{path}}\text{TO ([ ])} \end{bmatrix}$)]))]

CAUSE $_{\text{entrain}^+}$ takes John as its first argument, and the subscript $_{\text{entrain}^+}$ means that John's taking is temporally coextensive with the motion of the book, and that John succeeds in completing the action. The argument slot of TO is unfilled, but it is implicitly identified with John.

Note here that Jackendoff contrasts the kind of causation seen with *take* with that seen with *throw*. In (74) Bill's throwing only initiates the ball's motion. Such a kind of causation is encoded on the conceptual structure as a subscript *launch*:[2]

(74) Bill threw the ball into the field.

$$[\text{CAUSE}_{\text{launch}}{}^{+}\ ([\text{BILL}],\ [\text{GO}\ ([\text{BALL}],\ \begin{bmatrix} & \text{FROM}\ ([\text{BILL}]) \\ \text{path} & \text{TO}\ ([\text{IN FIELD}]) \end{bmatrix}\ )])]$$

(cf. Jackendoff (1990))

The distinction between *entrain* and *launch* plays a vital role in the specification of the conceptual structure of the *take+a+V* construction. Those which are put into the *launch* type such as *hit, hurl, release,* and *throw* do not have *take+a+V* counterparts:

(75) a. *John took a hit of the ball to the field.
b. *John took a hurl of the ball into the field.
c. *John took a release of the bird from the cage.
d. *John took a throw of the ball into the field.

This fact is definite evidence for our claim that the feature *entrain,* not *launch,* is encoded on the causative function in the conceptual structure of the *take+a+V* construction.[3]

The conceptual structures of *take-2, take-3,* and *take-6* are represented in (77), (79), and (81), respectively:

(76) John took the book to Mary. (=(63))

(77) $[\text{CAUSE}_{\text{entrain}}{}^{+}\ ([\text{JOHN}],\ [\text{GO}\ ([\text{BOOK}],\ \begin{bmatrix} & \text{FROM}\ ([\quad]) \\ \text{path} & \text{TO}\ ([\text{MARY}]) \end{bmatrix}\ )])]$

(78) John took the book to Chicago. (=(64))

(79) $[\text{CAUSE}_{\text{entrain}}{}^{+}\ ([\text{JOHN}],\ [\text{GO}\ ([\text{BOOK}],\ \begin{bmatrix} & \text{FROM}\ ([\quad]) \\ \text{path} & \text{TO}\ ([\text{CHICAGO}]) \end{bmatrix})])]$

(80) John took Mary to the theater. (=(67))

(81) $[\text{CAUSE}_{\text{entrain}}{}^{+}\ ([\text{JOHN}]\ ,\ [\text{GO}\ ([\text{MARY}],\ \begin{bmatrix} & \text{FROM}\ ([\quad]) \\ \text{path} & \text{TO}\ ([\text{THEATER}]) \end{bmatrix}\ )])]$

Functional structures (77), (79), and (81) have the common functions such as $\text{CAUSE}_{\text{entrain}}{}^{+}$, GO, and TO, the difference between them being the arguments filled in the slots. As a consequence, those three can get the corresponding conceptual structure (82), whose argument slots are to be filled except that of FROM:

(82) $[\text{CAUSE}_{\text{entrain}}{}^{+}\ ([\ \text{A}\ ]\ ,\ [\text{GO}\ ([\ \text{B}\ ],\ \begin{bmatrix} & \text{FROM}\ ([\quad]) \\ \text{path} & \text{TO}\ ([\text{C}\ ]) \end{bmatrix}\ )])]$

Functional structure (73) can be, in parallel with (82), described as in (83):

(83) $[\text{CAUSE}_{\text{entrain}} + ([\ D\ ]\ ,\ [\text{GO}\ ([\ E\ ], \begin{bmatrix} \text{FROM}\ ([\ F\ ]) \\ _{\text{path}}\ \text{TO}\ ([\ ]) \end{bmatrix}\ )])]$

The difference between (82) and (83) is which argument slot, FROM or TO, is occupied. For notational convenience, schemata (82) and (83) are referred to as TAKE *x* TO *y* and TAKE *x* FROM *y*, respectively, which are not far from satisfactory, I think, in virtue of the arguments in Section 3.3. To summarize the discussion above, we have two schemata TAKE *x* TO *y* and TAKE *x* FROM *y* in the spatial domain.

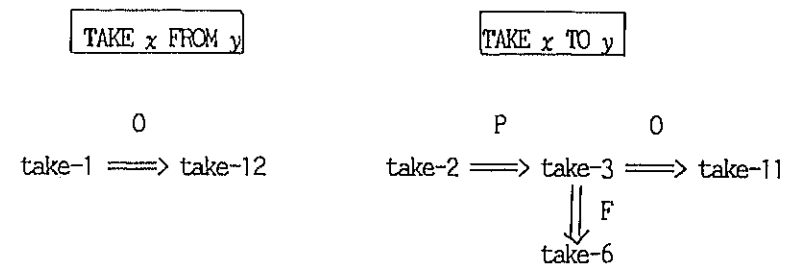
As for the relationships among the senses of this domain, as Norvig and Lakoff state, *take-3* is linked to *take-2*, by profile shift, and *take-6* is a minimal variant of *take-3*, the minimal difference being Going-to-D Schema.

We should introduce here other senses of *take* which also function in the spatial domain. Example sentences are given in (84) and (85):

(84) Don't forget to take your umbrella.

(85) Let me take your coat. *(COBUILD* 1st edition)

(84) conveys that the addressee is told to take his/her umbrella to some place which is not explicit here. This interpretation suggests that its conceptual structure can be TAKE *x* TO *y*. By contrast, (85) has the conceptual structure TAKE *x* FROM *y*, in which the argument of FROM, from which the speaker takes the addressee's coat, is implicit (we will call the senses represented as in (84) and (85) *take-11* and *take-12*, respectively). Based on this, *take-11* is linked to *take-3*, and *take-12* to *take-1*, by optional mapping.[4] The consequence is illustrated in Fig. 1. Double-lined arrows indicate a spatial linking.



O: optional mapping

P: profile shift

F: frame addition

Fig. 1

4.3 The Psychological Domain

Let us turn to psychological senses. *Take-4* and *take-5* (repeated here in (86) and (88)) are linked to *take-2* and *take-1*, respectively, in the metaphorical mapping. Along this line, their conceptual structures are shown in (87) and (89):

(86) John took a punch at Mary.

(87) $[\text{CAUSE}_{\text{entrain}}{}^{+}$ ([JOHN], [GO ([PUNCH], $\begin{bmatrix} & \text{FROM ([ ])} \\ \text{path} & \text{TO ([MARY])} \end{bmatrix}$)])]

(88) John took a punch from Mary.

(89) $[\text{CAUSE}_{\text{entrain}}{}^{+}$ ([JOHN], [GO ([PUNCH], $\begin{bmatrix} & \text{FROM ([MARY])} \\ \text{path} & \text{TO ([ ])} \end{bmatrix}$)])]

As is clear from (87), *take-4* has the same conceptual structure as *take-2*, that is to say, (82). On the other hand, (89) is on a par with (83).

Take-8 and *take-9* have, as might be predicted from the discussion in Section 3, such notations as in (91) and (93):

(90) John took a bite of apple/ a drink of water. (=(69))

(91) $[\text{CAUSE}_{\text{entrain}}{}^{\dagger}$ ([JOHN], [GO ([FOOD/LIQUID], $\begin{bmatrix} & \text{FROM ([ ])} \\ \text{path} & \text{TO ([JOHN'S MOUTH])} \end{bmatrix}$)])]

(92) John took a jog/ a stroll/ a ride/ a walk. (=(70))

(93) $[\text{CAUSE}_{\text{entrain}}{}^{+}$ ([JOHN]$^{\#}$, [GO ([α], $\begin{bmatrix} & \text{FROM ([ ])} \\ \text{path} & \text{TO ([ ])} \end{bmatrix}$)])]

In (91), the argument which fills the slot following GO can be construed as something taken to John's mouth. In such a case, it might be said that the act of biting, for example, can be metonymically understood as a thing bitten by that action. In (93), α represents John's phisical body, whose destination is not explicit. Again, (83) is the abstract structure of *take-8* and (82) that of *take-9*. As for the network, *take-8* is linked to *take-5* by metonymy, and *take-9* to *take-4* by optional mapping.

The conceptual structures of *take-7* and *take-10* are represented in (95) and (97):

(94) John took a glance at/ a look at a picture. (=(68))

(95) $[\text{CAUSE}_{\text{entrain}}{}^{+}$ ([JOHN], [GO ([EYES], $\begin{bmatrix} & \text{FROM ([ ])} \\ \text{path} & \text{TO ([PICTURE])} \end{bmatrix}$)])]

(96) John took a pee. (=(71))

(97) $[\text{CAUSE}_{\text{entrain}}{}^{+}([\text{JOHN}], [\text{GO}([\text{PEE}], \begin{bmatrix} \text{FROM}([\ ]) \\ \text{path TO}([\ ]) \end{bmatrix})])]$

As is clear from (95) and (97), *take-7* and *take-10* have the same conceptual structure as (82). In both cases, $\text{CAUSE}_{\text{entrain}}{}^{+}$ is at work, because while the first arguments of GO, EYES (which are conceived of as a metaphorical use) and PEE, move to the goal, whether explicit or implicit, John's acting of such actions are also temporally coextensive with them, though John himself does not go outside of his domain.

The metonymical understanding of an action holds for these senses as well. In (94), as Norvig and Lakoff suggest, the act of forming a percept stands for the percept. The act of peeing in (96) too can be metonymically recognized as a thing which is discharged by such an action. The discussion above kept in mind, *take-7* and *take-4* can be taken as a same type of sense, and *take-10* is linked to *take-4* by optional mapping.

We should also consider other senses of *take* functioning in the psychological domain. Look at (98) and (99) (which are henceforth called *take-13* and *take-14*):

(98) Andrew said that he always took his problems to his mother.

(99) Let's take a break. (*COBUILD* 1st edition)

Take-13 has a conceptual structure of (82), and *take-14* a conceptual structure of (83). The former is linked to *take-2* by metaphorical mapping and the latter to *take-5* by optional mapping.

It is important to note here that the psychological domain has no equivalent for *take-11*. Compare (100) and (101):

(100) a. John took the book to Chicago. (=(78))

b. Don't forget to take your umbrella. (=(84))

(101) a. Andrew said that he always took his problems to his mother. (=(98))

b. *He always took his problems.

The pair in (100) shows that the destination is omissible in the spatial domain. On the other hand, as it is clear from (101), the prepositional phrase *to his mother*, which is used in the metaphorical domain, is not omissible. How could we account for this phenomenon?

Lakoff (1993) argues that destinations in the spatial domain are omissible, because they are settings and thus they do not participate in the action of moving. Consider (102):

(102) a. Harry is arriving here at noon.

b. Harry is arriving at noon. (Lakoff (1993))

The verb *arrive* has the setting *here* as an omissible argument place.

Then, will the metaphorical senses of *arrive* have that argument place omissible or not? Lakoff answers this question, giving the following pair:

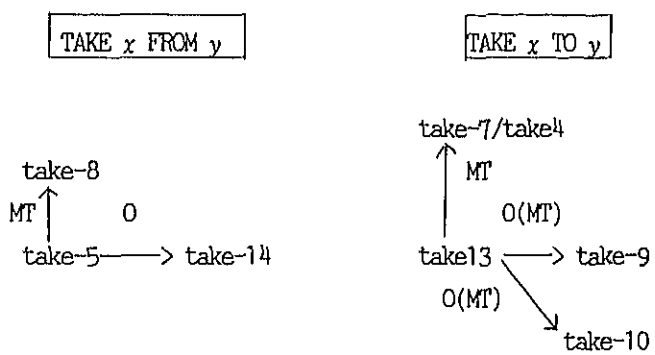
(103) a. He arrived at that conclusion.

b. *He arrived.

(103a) can be understood with THINKING IS MOVING metaphor, and it cannot be interpretable without the prepositional phrase *at that conclusion.* The reason is that in the metaphorical domain of thinking, the thoughts are participants, that is to say, they are part of the action of thinking. Thus, they are not omissible.

Following Lakoff's setting-participant distinction, we can account for the contrast between (100) and (101). Since (100a) is understood in the spatial domain, the destination *to the Chicago* is a setting; it is omissible. Thus, (100b) is interpretable without a destination. However, we can say (101a), using a metaphorical understanding of solving problems by consulting a person about them. In the metaphorical domain of consulting, consultants or counselors are participants constituting part of the action of consulting, not merely a setting for the action. Thus, they are not omissible.

The conclusion of the psychological senses of *take* is summarized in Fig. 2. Psychological linking is represented by a single-lined arrow.



O: optional mapping

MT: metonymy

Fig. 2

By combining Fig. 1 with Fig. 2, we get Fig. 3. Broken-lined arrows show a metaphorical linking between a spatial sense and a psychological sense.

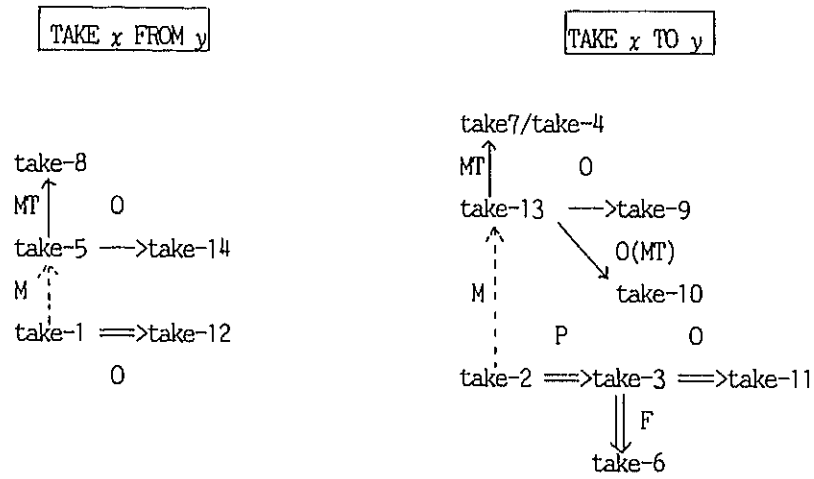


Fig. 3

Some points should be noted here. It is not always possible to make a clear distinction between spatial senses and psychological senses. In this paper idiomatic expressions such as *take a pee* and *take a walk* are treated as psychological senses, though the actions described by these verbs themselves are conceived of in the spatial domain. Concerning this, Lakoff (1987) claims, in examining the spatial senses of *over* in the network approach, that "The links are sometimes defined by shared properties, but frequently they are defined not only by shared properties, but by transforms or by metaphors"(p.435).

The consideration of TAKE *x* FROM *y* as a central schema, to which TAKE *x* TO *y* is linked, is consistent with our conclusion. Example (104) is interpretable only with TAKE *x* FROM *y* underlying it:

(104) John took two books.

This fact probably conforms to Norvig and Lakoff's claim that *take-1*, as in *John took the book from Mary*, is a central sense of *take*, because English speakers intuitively judge that sense to be the most basic.

Language acquisition might have something to do with this matter; among various senses of *take*, the one that children learn in the earliest stage could be *take-1*. It is no doubt that such a point of view will shed some light on

the prototypical sense of a word, I think, but we cannot touch on it in the present study.

The last to be discussed is that these two schemata might be abstracted by a more abstract schema such as *x* ACROSS THE DOMAIN. This may be predictable, but, as in the above case, it remains for future research.

5. Conclusion

In this paper we have pointed out some problems arisen from Norvig and Lakoff (1987) and have presented an adequate analysis of *take* in the network theory. The careful examination of the verb meanings reveals that they have either schema TAKE *x* FROM *y* or schema TAKE *x* TO *y*, and that the senses which share the same schema form a network, either in the spatial domain or in the psychological domain.

Notes

* I am indebted to the following people for making a number of valuable comments: Minoru Nakau, Yukio Hirose, Yuji Tanaka, Akiko Miyata, Hiroyuki Tahara, and Noriko Nemoto. My thanks also go to Gerard White and Michele Steele, who patiently acted as informants. All remaining inadequacies are of course my own.

[1] The aspectual properties of *stare* and *watch* should also be in mind in relation to the cooccurrence with the *take+a+V* construction. These verbs are usually understood as keeping one's eyes fixed on a thing/a person, which implies that the action lasts for a long time. By contrast, *look* has little to do with the implication. However, it remains to be seen how such aspectual properties operate on the grammatical judgement of (59) and (60).

[2] As Jackendoff (1990) points out, the terms *entrain* and *launch* were first introduced by Michotte (1954).

[3] Notice that the verb *drag*, which has the kind of causation *entrain*, cannot occur in the *take+a+V* construction. Observe:

(i) *Bill took a drag of the car down the road.

We might ascribe the unacceptability of (i) to a construction constraint: The verbs eligible to this construction are intended to mean an action without efforts, because the person referred to by the subject is an actor who does an action described by *V* and at the same time the receiver of it.

* We owe the term *optional mapping* to Iwata (1995).

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