

Chapter 2

Lexicalizing and Combining

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Often, theorists mean different things by “meaning,” and understandably so.¹ Even restricting attention to language, one might want to talk about what *speakers* mean when they communicate, or what *expressions* of a language mean. Regarding the latter, one might focus on languages that human children can naturally acquire, certain systems of animal communication, possible languages of thought, formal languages invented for purposes of computation or for modeling “ideal” thought/communication, etc. Like many words, “mean” is polysemous. So if the task is to study whatever natural phenomena we are gesturing at, it’s hard to know where to begin.

On the other hand, it can seem obvious that whatever *verb meanings* are, they vary along a dimension that can be described in terms of valence, adicity, or Frege’s (1892) metaphor of *saturation*. This is a tempting starting point, with implications for semantic composition that have become standard. But I’ll urge a different view, according to which verbs—along with nouns, common and proper—are instructions for how to access *monadic* concepts that can be *conjoined* with others; cp. Hobbs (1985), Parsons (1990), Schein (1993, 2001), Pietroski (2005, 2006). As we’ll see, adopting this perspective leads to an attractive though nonstandard conception of how words and the process of lexicalization are related to human thought.

Section 2.1 reviews some facts that motivate the view I want to challenge, and then some other facts that motivate the search for an alternative view of the sort discussed in Sect. 2.2. I’ll conclude by locating my specific proposal in the context of

¹ This chapter, a written version of material presented at the Verb Concepts conference in 2008, has older descendants; see Pietroski (2010, 2011, 2012a, b). Though for various reasons, I have not revised this early presentation of my views in light of subsequent work.

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Chomsky's (1986, 1995) conception of distinctively human languages as biologically instantiated procedures, I-languages, whose expressions make contact with other cognitive systems.

2.1 Fregean Verbs: Idealization and Myth

We humans can express endlessly many thoughts by linguistic means. This suggests that expressible thoughts are composed of concepts that are linked to expressions, which combine in ways that somehow mirror the ways in which the concepts combine. Frege offered a model language whose expressions reflect thoughts of a certain kind (*Gedanken*). But as Frege stressed, even if humans can have such thoughts, his *Begriffsschrift* may not be a good model of the languages that we naturally use to express the thoughts we typically entertain. Still, one can hypothesize that a verb is like a predicate of Frege's invented language in expressing a concept whose adicity determines the number of arguments the verb can/must combine with in a sentence. In this section, I note some well-known difficulties for this idea. My suspicion is that its familiarity, easily mistaken for inevitability, leads us to underestimate these difficulties and the attractions of an available alternative.

2.1.1 A Pretty Picture

In a sentence like (1) or (2), consisting of a verb and one or more names,

- (1) Brutus arrived.
- (2) Brutus saw Caesar.

each name is an argument of the verb. The relation a verb bears to its argument(s), in a sentence or sentential clause, is somehow asymmetric. Verbs *take* arguments. By contrast, the names in (1) and (2) do not take verbs: "saw Caesar" is a verb phrase, akin to "arrived," not a phrase that is grammatically akin to "Brutus." In some sense, the names appear as satellites of the verbs. Let's take this as given, for now, and precisify later.

One might hope to explain this grammatical asymmetry in terms of a more fundamental asymmetry exhibited by constituents of thoughts. For present purposes, let's assume that at least many thoughts can be described as the result of combining an *unsaturated* concept with one or more *saturating* concepts. Saturating concepts, like BRUTUS and CAESAR, can be used to think about things like Brutus and Caesar. Unsaturated concepts, like ARRIVED(*x*) and SAW(*x*, *y*), can be saturated to form thoughts like ARRIVED(BRUTUS) and SAW(BRUTUS, CAESAR). Correlatively, an

unsaturated concept can be viewed as the result of abstracting away from the specific contents of one or more saturating concepts in a thought.²

Given some such conception of articulable thoughts—thoughts with parts that can be systematically combined and expressed—one might suppose that verbs are argument-taking words *because* they express unsaturated concepts, while names appear in sentences as arguments *because* they express saturating concepts.³ If verbs have unsaturated meanings in this sense, then perhaps the *number* of arguments that a verb can combine with is determined by the adicity of (i.e., the number of variable positions in) the concept expressed with the verb.

One can go on to hypothesize that this determination is often transparent: “arrived” takes a single argument because it indicates the monadic concept $\text{ARRIVED}(x)$; “saw” takes two arguments, at least in active voice, because it indicates the dyadic concept $\text{SAW}(x, y)$. On this view, “saw Caesar” indicates the complex monadic concept $\text{SAW}(x, \text{CAESAR})$, which is like $\text{ARRIVED}(x)$ in being saturatable by BRUTUS . One can also say that “gave” indicates the triadic concept $\text{GAVE}(x, y, z)$ and so takes three arguments, as in (3);

(3) Brutus gave Caesar a sandwich.

where “a sandwich” reflects existential quantification over (as opposed to saturation of) the conceptual “slot” for the thing given to the recipient by the giver, as shown in (3a).

(3a) $\exists z:\text{SANDWICH}(z)[\text{GAVE}(\text{BRUTUS}, \text{CAESAR}, z)]$

In this thought, the complex monadic concept $\text{GAVE}(\text{BRUTUS}, \text{CAESAR}, z)$ saturates the second-order concept $\exists z:\text{SANDWICH}(z)[\Phi(z)]$, which is the result of saturating a dyadic concept, $\exists z:\Psi(z)[\Phi(z)]$, with the monadic concept $\text{SANDWICH}(z)$. The idea is that an unsaturated concept can saturate suitable concepts of a higher order; by contrast, BRUTUS and CAESAR are said to be inherent *saturaters*. Correlatively,

² I take concepts to be composable mental symbols of a special sort; see Margolis and Laurence (1999), especially their introduction. In Fregean terms, starting with $\text{ARRIVED}(\text{CAESAR})$ and abstracting away from the specific content of CAESAR yields the monadic concept $\text{ARRIVED}(x)$. Starting with $\text{SAW}(\text{CAESAR}, \text{BRUTUS})$ and abstracting away from the contents of both saturating concepts yields the dyadic concept $\text{SAW}(x, y)$. I assume that concepts have contents, which need not be linguistic meanings. I follow the usual conventions of using small capitals to indicate concepts, with variables (“ x ,” “ y ,” . . .) indicating the number and logical order of saturaters: $\text{SAW}(\text{CAESAR}, \text{BRUTUS})$ implies that Caesar saw Brutus; $\text{SAW}(x, \text{BRUTUS})$ is a monadic concept that applies to anything that saw Brutus, while $\text{SAW}(\text{CAESAR}, y)$ is a monadic concept that applies to any entity that Caesar saw. But as discussed below, I do not assume that the contents of unsaturated concepts are functions, or that $\text{ARRIVED}(\text{CAESAR})$ denotes the value of some function with Caesar in its domain.

³ I assume that talk of lexical items expressing concepts is to be understood, eventually, in terms of how concepts are indicated in speech and/or accessed in comprehension. But I do not assume that each lexical item λ is paired with a single concept C : if only because of polysemy, and the possibility of different perspectives on the things thinkers think about, a speaker might indicate one concept with a word that fetches a related but distinct concept in a hearer. For me, saying that λ expresses C is a simple way of saying that λ is linked, in a special indicating/fetching way, to one or more concepts that share a certain form and perhaps a common root; see Sect. 2.2.

“surface syntax” need not reflect the order of saturation. In (3), “a sandwich” is a grammatical constituent of a verb phrase headed by “gave.”⁴

Given a “saturationist” conception of semantic composition, a verb’s valence may *exceed* its overt arguments, at least in some sentences. Perhaps “ate” is fundamentally transitive/dyadic, as suggested by (4), and (5) somehow involves a covert argument.

(4) Caesar ate a sandwich.

(5) Caesar ate.

I’ll return to some complications for this suggestion. But first, let me stress that saturationists can and should posit event variables, following Davidson (1967) and much subsequent work. For example, the untensed verb “arrive” can be treated as an indicator of the formally dyadic concept $\text{ARRIVE}(E, x)$, which applies to an ordered pair of things just in case the first is an arrival of the second. Correspondingly, theorists can represent the thought expressed with (1) as in (1a).⁵

(1) Brutus arrived.

(1a) $\exists E[\text{PAST}(E) \ \& \ \text{ARRIVE}(E, \text{BRUTUS})]$

Eventish analyses of this sort account for the pattern of entailments and nonentailments exhibited by (the thoughts expressed with) sentences like (6) and (7).

(6) Brutus poked Caesar with a red stick sharply.

(7) Brutus poked Caesar with a blue stick softly.

Note that while (6) implies each of (8–10), and (7) implies each of (10–12),

(8) Brutus poked Caesar with a red stick.

(9) Brutus poked Caesar sharply.

(10) Brutus poked Caesar.

(11) Brutus poked Caesar softly.

(12) Brutus poked Caesar with a blue stick.

the conjunction of (6) and (7) implies neither (13) or (14).

(13) Brutus poked Caesar with a red stick softly.

(14) Brutus poked Caesar with a blue stick sharply.

⁴ This divergence can be described in terms of “covert” movement or type-adjustment; see, e.g., May (1985) and Jacobson (1999).

⁵ But if events of arriving are not independent of arrivers, no value of the variable in $\text{ARRIVE}(E, \text{BRUTUS})$ is independent of Brutus, and so $\text{ARRIVE}(E, x)$ is not a concept of a genuine *relation*. Compare $\text{AFTER}(E, F)$, $\text{ABOVE}(x, y)$, and $\text{ARRIVE-AT}(T, x)$, whose first variable ranges over *times*, which are independent of arrivers. Likewise, while $\text{SEE}(E, x, y)$ is formally triadic, the corresponding relation does not hold among three independent entities. In this sense, hypothesizing that verbs indicate concepts like $\text{ARRIVE}(E, x)$ and $\text{SEE}(E, x, y)$ —as opposed to $\text{ARRIVED}(x)$ and $\text{SAW}(x, y)$ —adds one to the posited adicities, allowing for adverbial modification of event variables, without changing much else.

This pattern is expected if (6) and (7) have the logical forms displayed in (6a) and (7a).⁶

(6a) $\exists E\{\text{PAST}(E) \ \& \ \text{POKE}(E, \text{BRUTUS}, \text{CAESAR}) \ \& \ \exists x[\text{RED}(x) \ \& \ \text{STICK}(x) \ \& \ \text{INSTRUMENT}(E, x)] \ \& \ \text{SHARP}(E)\}$

(7a) $\exists E\{\text{PAST}(E) \ \& \ \text{POKE}(E, \text{BRUTUS}, \text{CAESAR}) \ \& \ \exists x[\text{BLUE}(x) \ \& \ \text{STICK}(x) \ \& \ \text{INSTRUMENT}(E, x)] \ \& \ \text{SOFT}(E)\}$

Moreover, a tenseless version of (10) can appear as the direct object of certain verbs, as in (15). This suggests that the perceptual verb “saw” does *not* express the dyadic *SAW*(*x*, *y*).

(15) Antony saw Brutus poke Caesar.

For “Brutus poke Caesar” does not name or describe any particular seeable thing. Brutus may have poked Caesar many times, in many ways, with sticks of varied colors; cp. Ramsey (1927). Instead, one can say that “saw” expresses *SAW*(*E*, *x*, *y*), where values of the last variable include events as well as people; see Higginbotham (1983). On this view, the thought expressed with (15) has the form shown in (15a).

(15a) $\exists E\{\text{PAST}(E) \ \& \ \exists f[\text{SEE}(E, \text{ANTONY}, f) \ \& \ \text{POKE}(f, \text{BRUTUS}, \text{CAESAR})]\}$

And if the adverbial phrase in (16) is understood as a conjunct of a complex event description,

(16) Antony saw Brutus poke Caesar with a telescope.

then the *ambiguity* of (16) can be represented as in (16a) and (16b).

(16a) $\exists E\{\text{PAST}(E) \ \& \ \exists f[\text{SEE}(E, \text{ANTONY}, f) \ \& \ \text{POKE}(f, \text{BRUTUS}, \text{CAESAR})] \ \& \ \exists x[\text{TELESCOPE}(x) \ \& \ \text{INSTRUMENT}(E, x)]\}$

(16b) $\exists E\{\text{PAST}(E) \ \& \ \exists f[\text{SEE}(E, \text{ANTONY}, f) \ \& \ \text{POKE}(f, \text{BRUTUS}, \text{CAESAR})] \ \& \ \exists x[\text{TELESCOPE}(x) \ \& \ \text{INSTRUMENT}(f, x)]\}$

On one reading, Antony does his seeing (of a poke) with a telescope; on the other, Brutus does his poking (of Caesar) with a telescope.

I don’t know how to account for such facts, in any systematic way, without appealing to event variables. So I assume that saturationists will allow for such variables, and maintain that a verb typically expresses a concept whose adicity *exceeds* the number of arguments that the verb takes in a sentence. (And covert existential closure is not limited to event variables.) But let me note one more reason for positing event variables in the concepts expressed with verbs.

⁶ If the adverbial phrases correspond to conjuncts of a complex monadic concept, closed by existential quantification, the valid inferences are instances of conjunction reduction: $\exists E[\Phi(E) \ \& \ \Psi(E) \ \& \ \Delta(E)]$ implies $\exists E[\Phi(E) \ \& \ \Psi(E)]$, which implies $\exists E[\Phi(E)]$. But an instance of $\exists E[\Phi(E) \ \& \ \Psi(E) \ \& \ \Delta(E)] \ \& \ \exists E[\Phi(E) \ \& \ \Gamma(E) \ \& \ \Theta(E)]$ need not imply $\exists E[\Phi(E) \ \& \ \Psi(E) \ \& \ \Theta(E)]$ or $\exists E[\Phi(E) \ \& \ \Delta(E) \ \& \ \Gamma(E)]$. See Taylor (1985), expounding an argument due to Gareth Evans. The example also shows that values of event variables are not ordered *n*-tuples consisting of participants and a moment in time; a sharp hit (of *y* by *x*) with a red stick can occur at the same time as a soft hit with blue stick.

If verbs like “poked” express dyadic concepts like $\text{POKED}(x, y)$, which applies to poker–pokee pairs, it is hard to describe (much less explain) the thematic asymmetry that these verbs exhibit; see, e.g., Dowty (1991), Carlson (1984), Baker (1997). Consider the possible concept $\text{KOPED}(x, y)$: when saturated by CAESAR and then BRUTUS, the result— $\text{KOPED}(\text{BRUTUS}, \text{CAESAR})$ —is true just in case Caesar poked Brutus; $\text{KOPED}(x, y)$ applies to pokee–poker pairs. Human children do not naturally acquire verbs that express such “thematically inverted” concepts. If they did, there would be sentences with verbs whose direct objects indicate agents and whose subjects indicate patients of the relevant events. This suggests that “poke” expresses a concept with an event variable, *and* that if this concept also includes variables for a poker and pokee, then this concept has a thematic decomposition along the lines shown in (17).⁷

$$(17) \forall E \forall x \forall y [\text{POKE}(E, x, y) \equiv \text{POKE}(E) \ \& \ \text{AGENT}(E, x) \ \& \ \text{PATIENT}(E, y)]$$

One can maintain that monadic concepts like $\text{POKE}(E)$ —concepts of events that may be expressed with nouns—are abstracted from the polyadic concepts expressed with verbs. So one can embrace generalizations like (17) while saying that intransitive, transitive, and ditransitive verbs express concepts that exhibit distinct adicities. Nonetheless, appeal to event variables can feed doubts about the saturationist picture of semantic composition for verb phrases.

2.1.2 *Messy Facts*

Some of these doubts are specific to the introduction of event variables. Others are often set aside as puzzles for any account. Though as we’ll see, the relevant facts are not so puzzling if verbs express monadic concepts like $\text{ARRIVE}(E)$ and $\text{POKE}(E)$.

If “arrive” and “poke” express $\text{ARRIVE}(E, x)$ and $\text{POKE}(E, x, y)$, respectively, then one needs some explanation for why (18) and (19) cannot have the indicated meanings.

(18) That Brutus arrived.

(18a) #That was an event of Brutus arriving.

(19) The witnessed event Brutus poked Caesar.

(19a) #The witnessed event was one of Brutus poking Caesar.

⁷ Or perhaps $\forall E \forall x [\text{POKE}(E, x, y) \equiv \text{POKE}(E, y) \ \& \ \text{AGENT}(E, x)]$; where $\text{POKE}(E, y)$ applies to event–pokee pairs (cp. Kratzer 1996, but also note 9 below). See Parsons (1990) on “subatomic” semantics. Schein (1993, 2001) extends arguments for “thematic separation” to plural constructions; see also Pietroski (2005) on action descriptions, including causative and serial verb constructions. Note that while thematic concepts are formally dyadic, like $\text{AFTER}(E, F)$ and $\text{ABOVE}(x, y)$, the corresponding relation does not hold between independent entities; cp. note 5.

Why can't the event variable correspond to an overt grammatical argument? If a verb cannot be combined with an overt argument for *each* variable that the verb introduces, then perhaps verbs do not take arguments *because* they express unsaturated concepts.

I'll return to the actual meaning of (18), which casts doubt on the idea that names appear as arguments *because* they express saturating concepts. For now, recall (5) and consider its relation to (20–22). Note that (5) does not follow from (20); these sentences are not synonymous.

- (5) Caesar ate.
- (20) Caesar ate something.
- (21) Caesar dined.
- (22) Caesar dined on pencils.

Suppose that Caesar ate a pencil, but Caesar is a normal human for whom pencils are not nutritious. Then an utterance of (20) can be true while an utterance of (5) is false. In this respect, (5) is more like (21). *Prima facie*, the implications go from (22) to (21) to (5) to (20). So even if (5) has a covert argument, and “eat” always expresses the polyadic concept $EAT(E, x, Y)$, one needs to say why (5) implies that the unspecified thing eaten is food for the eater. And the concept expressed with “dine” presumably does not have a *lower* adicity.⁸

On the contrary, one might think this concept adds something about the manner of the eating and/or the food eaten. Yet “Caesar dined something” is not a sentence of English—as if the concept expressed with “dine” does *not* have a variable for the food eaten, and describing this (essential) event participant requires a *grammatically optional* prepositional phrase. But then perhaps the concept expressed with “eat,” which does take a direct object, also lacks a variable for the food eaten. Perhaps “eat” and “dine” express $EAT(E)$ and $DINE(E)$, respectively.

As discussed in Sect. 2.2, this is compatible with speakers *having* the polyadic concepts $EAT(E, x, Y)$ and $DINE(E, x, Y)$. Indeed, these concepts may be related to the verbs in a way that helps capture the intuition that events of eating/dining require eaters and things eaten. But in any case, “eat” and “dine” differ: the former can take a direct object that specifies whatever was eaten; the latter requires use of a prepositional phrase to specify what was dined on. This difference must be encoded somehow, whatever concepts the verbs express. And as we'll see, it is easily encoded if the concepts expressed are monadic. So in my view, the interesting questions here concern the *kinds* of concepts that verbs indicate/fetch for purposes of semantic composition. Do the thoughts expressed with (20–21) have the forms shown in (20a–21a),

(20a) $\exists E\{PAST(E) \ \& \ \exists x[EAT(E, CAESAR, x)]\}$

(21a) $\exists E\{PAST(E) \ \& \ DINE(E, CAESAR)\}$

⁸ By contrast, (20) has a more permissive construal; cp. “There is something that Caesar ate.” So perhaps “eat” can express $INGEST(E)$ or $REFUEL(E)$, and that for whatever reason, a covert direct object forces the second choice. Perhaps events of ingestion are represented as having agents and patients, without any necessary connection to nourishment, while events of refueling need not be represented as having patients.

with thematic information represented elsewhere, or the forms shown in (20b–21b)?

(20b) $\exists E\{\text{PAST}(E) \ \& \ \text{AGENT}(E, \text{CAESAR}) \ \& \ \text{EAT}(E) \ \& \ \exists X[\text{PATIENT}(E, X)]\}$

(21b) $\exists E\{\text{PAST}(E) \ \& \ \text{AGENT}(E, \text{CAESAR}) \ \& \ \text{DINE}(E)\}$

Similar questions arise in the context of much discussed examples like (23–25).

(23) Brutus gave a museum a painting.

(24) Brutus donated a painting.

(25) Brutus donated a painting to a museum.

If “give” takes three arguments because it expresses $\text{GIVE}(E, X, Y, Z)$, one wants to know why “donate” does not express $\text{DONATE}(E, X, Y, Z)$ and also take three arguments. So perhaps “give” expresses a concept of *lower* adicity. The synonymy of (23) and (26)

(26) Brutus gave a painting to a museum.

invites the hypothesis that “give” expresses $\text{GIVE}(E, X, Y)$, and that (23) is used to express thoughts of the form shown in (23a), as opposed to (23b); cp. Larson (1988).

(23a) $\exists E\{\text{PAST}(E) \ \& \ \exists Y[\text{PAINTING}(Y) \ \& \ \text{GIVE}(E, \text{BRUTUS}, Y)] \ \& \ \exists Z[\text{MUSEUM}(Z) \ \& \ \text{RECIPIENT}(E, Z)]\}$

(23b) $\exists E\{\text{PAST}(E) \ \& \ \exists Y[\text{PAINTING}(Y) \ \& \ \exists Z[\text{MUSEUM}(Z) \ \& \ \text{GIVE}(E, \text{BRUTUS}, Y, Z)]]\}$

And upon reflection, the mere availability of ditransitive *constructions* like (23) does not favor the second analysis.

Examples like (27) do not lead us to say that “kick” expresses $\text{KICK}(E, X, Y, Z)$.

(27) Brutus kicked Caesar a bottle.

For plausibly, (27) and (28) are both used to express thoughts of the form shown in (28a).

(28) Brutus kicked a bottle to Caesar.

(28a) $\exists E\{\text{PAST}(E) \ \& \ \exists Y:\text{BOTTLE}(Y)[\text{KICK}(E, \text{BRUTUS}, Y) \ \& \ \text{RECIPIENT}(E, \text{CAESAR})]\}$

But if “give” and “donate” are like “kick” in expressing concepts with no variable for recipients, we must consider the possibility that these verbs express concepts with no variables for Agents, as in (23c); cp. Kratzer (1996).

(23c) $\exists E\{\text{PAST}(E) \ \& \ \text{AGENT}(E, \text{BRUTUS}) \ \& \ \exists Y[\text{PAINTING}(Y) \ \& \ \text{GIVE}(E, Y)] \ \& \ \exists Z[\text{MUSEUM}(Z) \ \& \ \text{RECIPIENT}(E, Z)]\}$

The existence of passive constructions like (29)

(29) Caesar was kicked.

is puzzling if “kick” expresses $\text{KICK}(E, X, Y)$. One can posit a process of introducing a related concept— $\text{KICK}(E, Y)$ —that has no variable for kickers, yet still has a saturatable variable for kickees: $\forall E\forall Y\{\text{KICK}(E, Y) \equiv \exists X[\text{KICK}(E, X, Y)]\}$. This goes some way toward the view urged here. But why should “passivization” be available at all? Why not understand “kicked Caesar” with a covert subject, or always require an overt quantificational subject as in (30)?

(30) Someone kicked Caesar.

Such considerations can help motivate the idea that “kick” expresses $KICK(E, Y)$. But then we must also consider “objectless” examples like (31) and nominal constructions like (32).

(31) The baby kicked.

(32) I get no kick from champagne.

Especially in light of the pressure to say that “dine” can express a concept with no variable for the food eaten, perhaps we should say that “kick” expresses $KICK(E)$, with no variable for kickees.⁹

Likewise, given passive uses of “give” and the possibility of giving at the office, perhaps we should say that “give” expresses $GIVE(E)$, with no variables for event participants. Moreover, if “give” expresses $GIVE(E, X, Y, Z)$, one might expect “sell” to express a concept with an *additional* argument, $SELL(E, X, Y, Z, W)$. For selling differs from giving, in that the seller gets something from the buyer: x sells y to z for w . Likewise, one might expect “buy” to express $BUY(E, X, Y, Z, W)$. So if combining verb V with argument A signifies saturation/binding of the concept expressed with V by the concept expressed with A , one might expect “sell” and “buy” to combine with *four* arguments (ignoring any event variable). But *prima facie*, neither verb can take four arguments. Note that (33) only has a bizarre meaning,

(33) *Brutus sold/bought Caesar the car a dollar.

according to which Caesar is a car *for whom* Brutus sold/bought a dollar; cp. (40) below. So if $SELL(E, X, Y, Z, W)$ and $BUY(E, X, Y, Z, W)$ are expressible concepts, we face the question of why they aren’t expressed with “sell” and “buy.”

One can say that syntax somehow forbids tritransitive constructions. But this is to grant that linguistic constraints may require a process of lexicalization that results in verbs with adicities that are *lower* than those of the concepts expressed. Examples like (34) and (35)

(34) Brutus sold the car.

(35) Caesar bought the car.

suggest that “buy” and “sell” express concepts with no more than two variables for participants—buyers/sellers and things bought/sold—in the relevant events. Especially given the facts concerning “give”/“donate”/“kick,” noted above, the synonymy of (36) with (37)

⁹ Again, see Parsons (1990) and Schein (1993, 2001). One can say that (31) has a covert direct object, and that it means something like “The baby did a kick”; cp. Hale and Keyser (1993). But if anything, this supports the idea that “kick” expresses $KICK(E)$ in both (31) and (32). And if one has already posited the concept $KICK(E, Y)$, one might use it to introduce a monadic concept of events: $\forall E \{ KICK(E) \equiv \exists Y [KICK(E, Y)] \}$. Kratzer (1996) offers a few reasons for not going this far, and instead leaving themes/patients semantically “unsevered” from verbs that apply to pairs of events and their “internal” participants; see note 7. But Williams (2007) argues that Kratzer’s arguments are not decisive for English, and that they seem less plausible for Igbo and Mandarin.

(36) Brutus sold Caesar the car.

(37) Brutus sold the car to Caesar.

suggests that “sell” expresses a concept with no variable for recipients. And note that while (35) follows from (38), much as (34) follows from (36), (38) is not synonymous with (39).

(38) Caesar bought Antony the car.

(39) Caesar bought the car from Antony.

Rather, (38) has a benefactive meaning like (40),

(40) Caesar bought the car for Antony

which differs from (41), which follows from (42), which employs two prepositional phrases.

(41) Caesar bought the car for a dollar.

(42) Brutus sold the car to Caesar for a dollar.

But if “Antony” does not indicate a saturater of the concept expressed by the verb in (38), then *prima facie*, “Caesar” does not indicate a saturater of the concept expressed by the verb in (36).

If “sell” does not require more arguments than “give” or “donate,” and “buy” does not require more arguments than “take,” perhaps that is because no verb expresses a concept with more than two variables for the relevant event participants. If so, we want to know the source of this constraint, which would follow from the stronger constraint that all verbs express monadic concepts of things that can have participants. But in any case, once saturationists adopt the weaker constraint, this reduces the interest of the hypothesis that verbs inherit adicities from the concepts they express. Moreover, if saturationists posit processes that *introduce* concepts like GIVE(E, X, Y) in terms of concepts with *higher* adicities, they can hardly complain if other theorists do the same and extend this strategy in light of examples like (43) and (44).

(43) Brutus gave/donated at the office.

(44) Caesar wants to buy low and sell high.

One can call these cases of “coercion” and set them aside for special treatment. But we shouldn’t suppose that we have any clear conception of how a concept can *have* an adicity that (if coerced) *changes*. We can, however, posit processes of using polyadic concepts to introduce concepts of lower adicity—even if this leads us in surprising directions.

2.2 A Conjunctivist Picture

Let’s assume that lexicalizers have many polyadic concepts like GIVE(X, Y, Z) or GIVE(E, X, Y, Z).

We can describe lexicalization as a process that uses available mental representations, over time and given experience, to make atomic linguistic expressions that can

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