

Make as a Triadic Unaccusative

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Expressions like (1a), with causative *make*, a subject clause, an experiencer, and an AP describing his/her state, show interesting properties. They permit expletive variants (1b) & backward binding by the experiencer (1c). They also have apparent connections to psych-verbs (Ψ -Vs) (2a) and causal adjunct constructions (2b):

- (1) a. [_{CP} That Bill had arrived] made John angry.
 b. **It** made John angry that [_{CP} that Bill had arrived].
 c. [That **he_i** was praised by **his_i** teacher] made **no boy_i** angry.
- (2) a. [_{CP} That Bill had arrived] **angered** John.
 b. John was/felt/became angry [_{PP} **because** Bill had arrived].

These properties are not found (in full) in superficially similar forms with non-experiencers & non-psych adjectives (non- Ψ -As) (3a-c):

- (3) a. [_{CP} That he was driving] made John responsible (for the accident).
 b. ***It** made John responsible (for the accident) [_{CP} that he was driving].
 c. *[That **he_i** was driving] made **no boy_i** responsible.

Cross-linguistically possibilities similar to (1) and (2) arise with the equivalent forms. Chinese expresses 'make' with the item *shi* (4)-(5):

- (4) a. [_{CP} Mali zai weijigantou turan chuxian] shi Zhangsan shifen gandong.
 Mary at emergency suddenly appear make Zhangsan very touched
 'That Mary appeared suddenly in (his) emergency made Zhangsan (feel) very touched.'
 b. [**Ziji_i** de pengyou zai weijigantou turan chuxian] shi **meige nanhai_i** dou
 self DE friend at emergency suddenly appear make every boy DOU
 shifen gandong.
 very touched
 'That self_i's friend appeared suddenly in (his) emergency made every boy_i feel very touched.'
- (5) a. [_{CP} Mali zai weijigantou turan chuxian] gandong-le Zhangsan.
 Mary at emergency suddenly appear touch-LE Zhangsan
 'That Mary appeared suddenly in (his) emergency touched Zhangsan.'

- b. Zhangsan gandao shifen gandong shi yinwei [_{CP} Mali zai weijigantou turan chuxian].
 Zhangsan feel very touched be because Mary at emergency suddenly appear
 'That Zhangsan felt very touched was because Mary appeared suddenly in (his) emergency.'

Interestingly, Chinese is somewhat more liberal than English, allowing backward binding with non-experiencers & non- Ψ -As (6a-b):

- (6) a. [_{CP} **Ziji_i** de gongzuo-liang turan da zeng] shi **Lisi_i** shifen manglu.
 self DE work-load suddenly big increase make Lisi very busy
 'That self_i's workload suddenly increased made Lisi_i very busy.'
 b. [_{CP} **Ziji_i** de gongzuo-liang da zeng] shi **meige yuangong_i** dou shifen manglu.
 self DE work-load big increase make every staff member DOU very busy
 'That self_i's workload increased made every staff_i member very busy.'

In this paper we:

- explore the syntactic properties of 'make'-causatives in English and Chinese,
- propose an analysis of 'make' as a triadic (three-argument) unaccusative V,
- argue that backward binding follows from an underlying structure where the experiencer c-commands the bound elements inside CP.
- relate our analysis to Ψ -Vs and *because* adjuncts, suggesting that in both lgs. Ψ -V = Ψ -A + 'make' and 'make' = ('be'/'feel') + 'because'.

1.0 Basic Data

1.1 English

As noted, the target construction involves a clausal subject, *make*, an experiencer, and an AP involving the experiencer's state:

- (7) a. [_{CP} That Bill had arrived] made John **angry/happy/suspicious/anxious/proud**.
 b. **It** made John angry/happy/suspicious/anxious/proud [_{CP} that Bill had arrived].
 c. [That **he_i** was praised by **his_i** teacher] made **no boy_i**
 angry/happy/suspicious/anxious/proud.

APs not involving psychological states produce odd results with the expletive variant, and do not generally permit backward binding (cf. (8)-(9)):

- (8) a. [_{CP} That he was driving] made John **responsible/culpable** (for the accident).
 b. ***It** made John responsible/culpable (for the accident) [_{CP} that he was driving].
 c. *[That **he_i** was driving] made **no boy_i** responsible/culpable.
- (9) a. [_{CP} That his patient canceled] made John **available/free/accessible**.
 b. ***It** made John available/free/accessible [_{CP} that he was driving].
 c. *[That **his_i** patient canceled] made **no doctor_i** available/free/accessible.

Likewise, DP following *make* must denote an experiencer. (10) shows a non-experiencer (*tool*) with non- Ψ -As; (11) shows a non-experiencer (*working*) with an adjective (*difficult*) that indirectly invokes experiencer (*us*). Expletive & backward binding variants are odd.

- (10) a. [_{CP} That its edge was dull] made **the tool** useful/useless/useable.
 b. ***It** made the tool useful/useless/useable [_{CP} that its edge was dull].
 c. *[That **its_i** edge was dull] made **no tool_i** useful/useless/useable.
- (11) a. [_{CP} That the temperature was high] made **working** difficult (for us).
 b. ??**It** made working difficult (for us) [_{CP} that the temperature was high].
 c. ??[That **his_i** teacher was present] made speaking difficult for **no boy_i**.

We take the basic construction to involve a clausal subject (CP); but non-expletive DP subjects are also possible (12a); these have no expletive variant (12b), but backward binding is possible (12c).

- (12) a. [_{DP} That fact] made John angry.
 b. ***It** made John angry that [_{DP} that fact].
 c. [Pictures of **himself_i**] made **no boy_i** angry.

NB: the possibility of a real DP subject creates potential ambiguity in strings like (13a).

- (13) a. **It** made John happy **that Bill had arrived**.
 b. [_{CP} That Bill had arrived] made John happy.
 c. [_{DP} That (event)] made John happy [_{CP} that Bill had arrived].
 d. [_{CP} That Mary was drunk] made John happy [_{CP} that Bill had arrived].

Reading 1: *it* is pleonastic; CP denotes CAUSE of John's happiness-state (cf. (13b)).

Reading 2: *it* is referential; CP is a complement of A & describes CONTENT of John's happiness-state; *it* refers to the cause (cf. (11c,d)).

1.2 Chinese

Chinese shows a basic pattern like English: *shi* 'make', CP subject, experiencer and Ψ -A (14a), and variants in which the subject is a DP (14b). It can also realize the case where both a cause CP and a CP complement to A occur (14c):

- (14) a. [_{CP} Mali turan likai] shi Zhangsan hen gaoxing.
 Mary suddenly leave make Zhangsan very happy
 'That Mary left suddenly made Zhangsan very happy.'
 b. [_{DP} Zhe-jian shi] shi Zhangsan hen gaoxing.
 this-Cl matter make Zhangsan very happy
 'This matter made Zhangsan very happy.'
 c. [_{CP} Mali turan likai] shi Zhangsan hen gaoxing [_{CP} Lisi neng yudao Wangwu].
 Mary suddenly leave make Zhangsan very happy Lisi can meet Wangwu
 'That Mary left suddenly made ZS very happy that Lisi could meet Wangwu.'

Chinese does not, however, exhibit a variant with an expletive (*a*), either null or overt (15a), nor does it allow a referential *pro* subject (15b):

- (15) a. ***a** shi Zhangsan [hen gaoxing Lisi neng yudao Fangfang].
 make Zhangsan very happy Lisi can meet Fangfang
 Intended: 'It made Lisi very happy that Lisi could meet Fangfang'
 b. ***pro** shi Zhangsan hen gaoxing.
 make Zhangsan very happy
 Intended: 'It made Zhangsan very happy'

Like English, Chinese permits backward binding in *shi*-causatives with experiencers & Ψ -As (16a); but it allows this in all *shi*-causatives, including ones with non-experiencers & non- Ψ -As (16b-d):

- (16) a. [**Ziji_i** bei chengzan] shi **meige nanhai_i** dou hen gaoxing.
 self BEI praise make every boy DOU very happy
 '[That **self_i** was praised] made every boy_i very happy.'
 b. [_{CP} **Ziji_i** de gongzuo-liang turan da zeng] shi **Lisi_i** shifen manglu.
 self DE work-load suddenly big increase make Lisi very busy
 'That **self_i**'s workload suddenly increased made Lisi_i very busy.'
 c. [_{CP} **Ziji_i** de gongzuo-liang da zeng] shi **meige yuangong_i** dou shifen manglu.
 self DE work-load big increase make every staff.member DOU very busy
 'That **self_i**'s workload suddenly increased made every staff_i member very busy.'

- d. [Kandao **ziji** de laoshi] shi **meige xuesheng** dou bu gan shuo hua.
 see self DE teacher make every student DOU not dare say word
 'Seeing self's teacher made every student; dare not to say a word.'

SUMMARY: Properties of English & Chinese 'make'-causatives

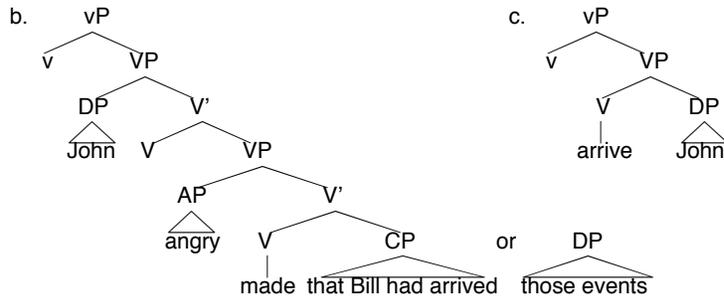
	English <i>make</i> -causatives	Chinese <i>shi</i> -causatives
Subject	<i>it</i> /DP/CP	* <i>it/pro</i> ; DP/CP
Backward binding	Only Ψ -As	Always possible

2.0 Analysis

We propose that English & Chinese "make" constructions like (17a) are **triadic unaccusatives** with underlying structure as in (17b). Here:

- vP is the usual one occurring with unaccusatives like *John arrived* (cf. (17c)).
- Empty V in (17b) is a light verb assigning θ_{EXP} , or a true LV hosting assignment of θ_{EXP} when *made* raises (Grimshaw and Mester 1988). In either case, we assume a lower VP structure for *make* thematically equivalent to (18).

- (17) a. [_{CP} That Bill had arrived]/[those events] made John angry.



- (18) **John** feel **anger** from/because-of **Bill's arrival/those events**.
EXPERIENCER STATE SOURCE

Derivation with CP source:

- *made* raises successively through V and v (19a).
- CP raises to vP and TP spec (19b), or (in English)
- expletive *it* is inserted; CP remains *in situ* (19c)

- (19) a. ___ make NP ~~make~~ AP ~~make~~ CP
 b. CP make NP AP ___
 (cf. *That Bill had arrived made John angry*)
 c. **It** make NP AP CP
 (cf. *It made John angry that Bill had arrived*)

Derivation with DP source:

- *made* raises successively through V and v (20a).
- DP raises obligatorily to TP spec, presumably for Case reasons (20b)

- (20) a. ___ make NP ~~make~~ AP ~~make~~ DP
 b. DP make NP AP ___
 (cf. *Those events made John angry*)

2.1 Shared Predictions for English & Chinese

1) Experiencer c-commands source CP/DP underlyingly (21). Assuming binding can be established derivationally or through silent copies, we correctly predict backward binding (21)-(23).

- (21) a. It made **no boy_i** happy [that **he_i** was praised]
 b. It made **each boy_i** envious [that **the other_i** was praised]
 c. It made **John_i** happy [that pictures of **himself_i** appeared on YouTube].
- (22) a. [That **he_i** was praised] made **no boy_i** happy ___ .
 b. [That **the other_i** was praised] made **each boy_i** envious ___ .
 c. [That pictures of **himself_i** appeared on YouTube] made **John_i** happy ___ .
- (23) [**Ziji** de zhaopian bei chengzan] shi **meige nanhai_i** dou hen gaoping ___ .
 self DE photo BEI praise make every boy DOU very happy
 '[That **self_i**'s photo was praised] made every boy_i very happy.'

2) DPs inside a complement to A fail to c-command the source CP/DP. We correctly predict backward binding failure with such antecedents (23)-(24).

- (23) a. *[That **he_i** was praised] made John happy [that **no boy_i** was present] ____.
 b. *[That **the other_i** was praised] made John happy [that **each boy_i** was away] ____.
 c. *[That pictures of **herself_i** appeared on YouTube] made John happy [that **Mary_i** was out of town] ____.

- (24) [Ziji_i/*_i] de dianying de jiang de xiaoxi shi **Zhangsan_i** hen gaoxing
 self DE movie get prize DE news make Zhangsan very happy
 [CP **meige daoyan_j** dou neng mashang jiedao tongzhi] ____.
 every director DOU can immediately receive inform
 'The news that his movie had won a prize made Zhangsan very happy that every director could be informed immediately.'

2.2 Divergences between English & Chinese

1) Chinese lacks expletive structures. We assume this is part of a wider fact about Chinese. A. Li (1985, 1990) and Tsai (1995) argue Chinese CPs resemble DPs in requiring case. This predicts counterparts of (25c) to be unavailable.

- (25) a. _____ make NP AP CP/DP (English/Chinese)
 b. CP/DP *shi* NP AP ____ (English/Chinese)
 c. It *make* NP AP CP (English only)

2) Chinese causatives lack small *pro* subjects. This seems to follow from a general ban on *pro* or a third person pronoun referring to events or facts:

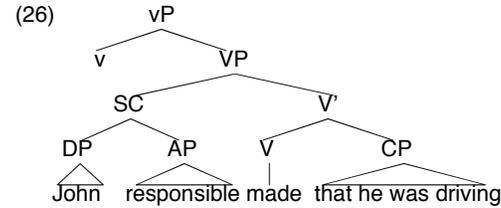
- Speaker A: Zhangsan zai bisai de shihou turan diedao.
 Zhangsan at competition DE moment suddenly fall
 'Zhangsan suddenly fell during the competition.'
 Speaker B: Shi a, *pro/*ta/zhe-jian shi/ZS turan diedao shi qita qiuyuan dachiyijing.
 Yes oh, pro/it/this-CI matter/ZS suddenly fell make other player shock
 'Oh yes, this event/that ZS suddenly fell made other players shocked.'

3) Chinese allows backward binding with all *shi*-causatives, including those with non-experiencers and non-Ψ As.

Reconsider first cases like (8a) in English with non-experiencers and non-Ψ As. What is their structure?

- (8) a. [CP That he was driving] made John **responsible/culpable** (for the accident).
 b. *It made John responsible/culpable (for the accident) [CP that he was driving].
 c. *[That **he_i** was driving] made **no boy_i** responsible/culpable.

We (tentatively) suggest the small clause structure (26):



- no triadic structure
- no assignment of experiencer by *make*
- *make* relates clause-like arguments – essentially synonymous with *cause*

Predictions:

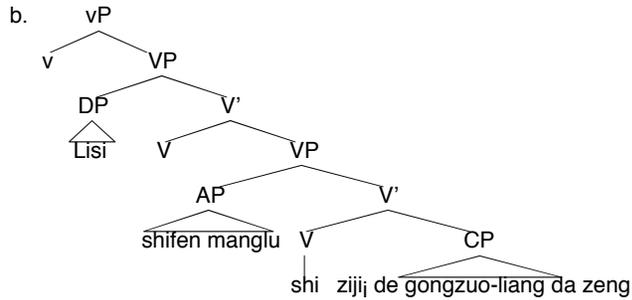
- no direct thematic relations between *make*, DP and AP
- no forward or backward binding (8c) (no c-command between DP & CP)

Why no expletive structure? (cf. (8b)) We aren't sure, but compare (27a,b):

- (27) a. [That he was driving] caused John to be held responsible.
 b. ?*It caused John to be held responsible [that he was driving].

What about Chinese? We propose a variant of our original structure in which V is a true LV, assigning no experiencer role, *shi* simply relates DP, a state, and a source/cause, like *be* (29). C-command still holds. Backward binding is predicted:

- (28) a. [CP Ziji_i de gongzuo-liang da zeng] shi **Lisi_i** shifen manglu.
 self DE work-load big increase make Lisi very busy
 'That self_i's workload increased made Lisi_i very busy.'



(29) **Lisi** be **busy** from/because-of **his workload increase**.
THEME STATE SOURCE

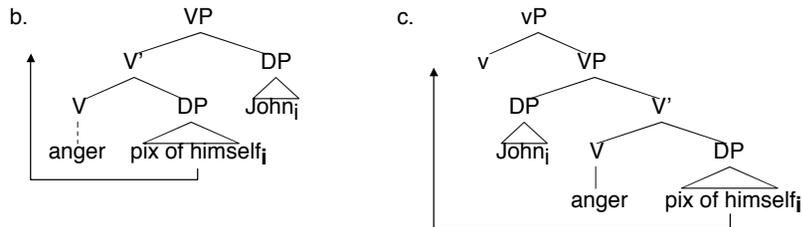
Chinese lacks separate lexical items for 'make' and 'cause'; *shi* conflates the two.

3.0 Extensions

3.1 Psych-Vs (Cheung & Larson 2006, 2007)

The account proposed here directly intersects Belletti & Rizzi's (1986) analysis of Ψ -Vs. B&R's original tree for (30a) is (30b); (30c) is our update with a right-descending tree.

(30) a. [Pictures of **himself_i**] anger John_j.



- B&R ('86): higher DP = Experiencer, lower DP = Theme. Source (of affect or state) seems more reasonable for the lower arg.
- Embedding under v also solves the apparent MLC violation, assuming V to v enlarges the minimal domain of V (equidistance).

B&R's (30c) may be seen as deriving from our (17b) by incorporation of AP into *make*, with *make+angry* spelled out as *anger*.

- (31) a. ___ John angry make [pictures of himself].
 b. ___ John make angry **make** [pictures of himself].
 c. ___ make John **make** angry **make** [pictures of himself].
 d. [pictures of himself] make John **make** angry **make** [pictures of himself].
- (32) a. ___ John angry make [pictures of himself].
 b. ___ John make angry **make** [pictures of himself].
 c. ___ John make+angry **angry** **make** [pictures of himself].
 d. ___ make+angry John **make+angry** **angry** **make** [pictures of himself].
 e. [pictures of himself] make+angry John **make+angry** **angry** **make** [pictures of himself].
 f. [pictures of himself] anger John (Spell-Out)

We also derive Ψ -V variants with clausal arguments and expletives (33a,b) and account for their backward binding properties (33c,d).

- (33) a. [_{CP} That Mary was absent] angered John ___ .
 b. It angered John [_{CP} that Mary was absent].
 c. [_{CP} That Mary sold pictures of **him_i** on eBay] angered **every boy_j** ___ .
 d. It angered **every boy_j** [_{CP} that Mary sold pictures of **him_i** on eBay].

3.2 Psych-Vs vs. Causatives in Chinese

We analyze Chinese *shi*-causatives and their Ψ -V counterparts (34a,b) analogously to the English cases, with *shi+fennu* 'make-angry' spelling out as *jinu* 'enrage':

- (34) a. [_{CP} Mali turan likai] **shi** Zhangsan hen **fennu**.
 Mary suddenly leave make Zhangsan very angry
 'That Mary left suddenly made Zhangsan (feel) very angry'
 b. [_{CP} Mali turan likai] **jinu-le** Zhangsan.
 Mary suddenly leave enrage-LE Zhangsan
 'That Mary left suddenly enraged Zhangsan.'

There are additional points, however. Like English, Chinese has experiencer-object (EO) (35a) and experiencer-subject (ES) (36a) Ψ -Vs. Only EOs show backward binding (cf. (35b) vs. (36b)).

- (35) a. Zhangsan ^{EXPERIENCER} **gandong-le** Lisi. (EO)
 Zhangsan touch-LE Lisi
 'Zhangsan touched Lisi.'
 b. [Ziji de pengyou de guanhuai] **gandong-le** Lisi.
 self DE friend DE care touch-LE Lisi
 'The loving care of his_i (own) friends touched Lisi_j.'

- (36) a. EXPERIENCER
Zhangsan **pa** Lisi. (ES)
Zhangsan fear Lisi
'Zhangsan fears Lisi.'
b. *Ziji_i de pengyou **pa** Lisi_i.
self DE friend fear Lisi

Some members of the two classes have causative variants (37b), (38b):

- (37) a. Lisi **pa** zhe-zhi xiongmeng de gou. (ES)
Lisa fear this-CI fierce DE dog
'Lisa fears this fierce dog.'
b. Zhe-zhi xiongmeng de gou **shi** Lisi shifen **haipa**. CAUSATIVE
This-CI fierce DE dog make Lisi very afraid
'This fierce dog makes Lisi (feel) very afraid.'
- (38) a. Zhangsan de guanhuai **gandong-le** Lisi. (EO)
Zhangsan DE care touch-ASP Lisi
'The loving care of Zhangsan touched Lisi.'
b. Zhangsan de guanhuai **shi** Lisi shifen **gandong**. CAUSATIVE
Zhangsan DE care make Lisi very touch
'The loving care of Zhangsan made Lisi (feel) very touched.'

Importantly, backward binding occurs not only with EO Ψ -Vs (35b), but also with the causative counterparts of both classes of psych Vs (39a,b):

- (39) a. [Ziji_i de pengyou de canbao xingwei] shi **Lisi_i** shifen **haipa**.
self DE friend DE brutal behavior make Lisi very afraid
'The cruelties of his_i (own) friends made Lisi_i (feel) very afraid.'
b. [Ziji_i de pengyou de guanhuai] shi **Lisi_i** shifen **gandong**.
self DE friend DE care make Lisi very touch
'The loving care of his_i (own) friends made Lisi_i (feel) very touched.'

Our analysis predicts backward binding with all *shi*-causatives.

3.3 Causal Adjuncts

Our account identifies the low CP argument of *make* as a cause or source phrase. The bracketed CP in (40a) thus appears parallel to the *because*-phrase in (40b):

- (40) a. It made John angry [that Bill had arrived]
b. John felt/was angry [because Bill had arrived]

Support for the parallelism: Hooper & Thompson (1973) note that "root operations" normally forbidden in complement & adjunct CPs (41) are nonetheless available in *because*-phrases (42):

- (41) a. *Helen and Jack had dinner [**before into the kitchen trooped the children**].
(Directional Adverb Preposing)
b. *The villagers all burst into song [**when in came the bride and groom**].
(Directional Adverb Preposing)
c. *We were all much happier [**when upstairs lived the Browns**].
(PP Substitution)
d. *The guests laughed out loud [**after Mary stopped singing, strangely**].
(Adverb Dislocation)
e. *The customer stomped out [**after the clerk, I guess, insulted her**].
(Complement Preposing)
f. *Max left the room [**after "I won," Alice exclaimed**].
(Direct Quote Preposing)
- (42) a. Helen and Jack stopped eating
[**because into the kitchen trooped the children**].
b. We were all much happier [**because upstairs lived the Browns**].
c. The guests laughed out loud [**because Mary stopped singing, strangely**].
d. The customer stomped out [**because the clerk, I guess, insulted her**].
e. Max left the room [**because "I won," Alice exclaimed**].

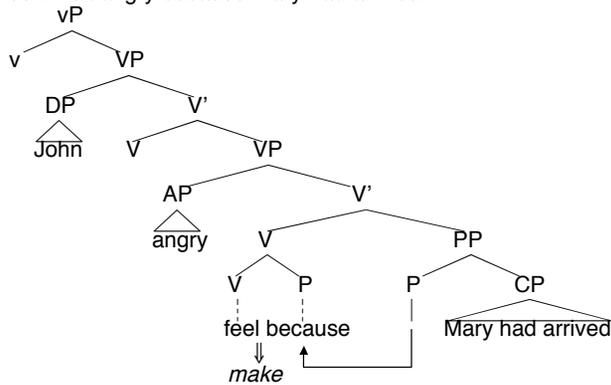
These operations also appear natural in CP arguments of *make* (43):

- (43) a. It made John angry { [**that into the kitchen trooped the children**].
b. { [**that upstairs lived the Browns**].
c. { [**that Mary stopped singing, strangely**].
d. { [**that the clerk, I guess, insulted him**].
e. { [**that "I won," Alice exclaimed**].

Suppose, following Larson (2004) that *because*-clauses are not outermost adjuncts of vP/TP, but rather innermost complements of V. Then *make*-type causatives can perhaps be related to clausal "adjunct" constructions.

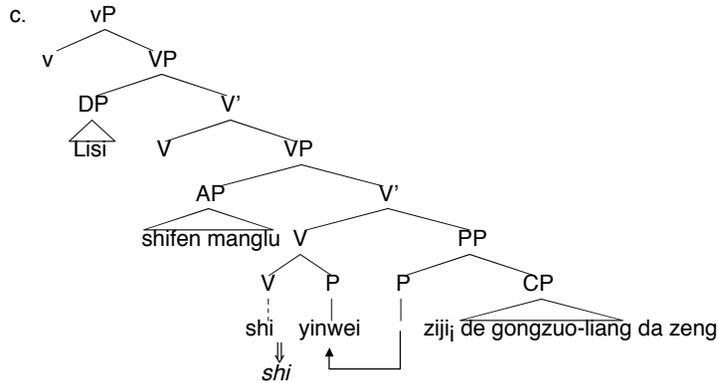
English *feel* appears to relate an experiencer (*John*) to a state (*angry/anger*) (44a), and can occur with a *because* "adjunct" (44b). Suppose *feel* can incorporate *because* (44b). This yields a plausible analysis of English *make*:

- (44) a. John felt angry.
 b. John felt angry because Mary had arrived.
 c.



Chinese *shi* does not require an experiencer or Ψ -A. We suggest Chinese *shi* 'make' arises by incorporation of *yinwei* 'because' into the copula *shi* 'be' (45b), (45c):

- (45) a. [_{CP} Ziji_i de gongzuo-liang da zeng] shi Lisi_j shifen manglu.
 self DE work-load big increase make Lisi very busy
 'That self_i's workload had increased made Lisi_j very busy.'
 b. [_{CP} Lisi_j shifen manglu] shi yinwei [_{CP} ziji_i de gongzuo-liang da zeng].
 Lisi very busy be because self DE work-load big increase
 'That Lisi_j was very busy was because self_i's workload had increased.'



SUMMARY

- *Make*-causatives in English with clausal subjects, experiencers & Ψ -As show expletive variants & backward binding.
- *Shi*-causatives in Chinese with clausal subjects show backward binding, with all kinds of DPs and As.
- We proposed a unified analysis of these causatives as a triadic unaccusative, selecting a DP, an AP, and a cause-source CP/DP.
- We argued that backward binding follows from an underlying structure where the DP c-commands the bound elements inside the cause-source CP/DP.
- We related our account to Ψ -Vs, suggesting that in both lgs. Ψ -V = Ψ -A + 'make'.
- We related our account to causal adjuncts, tentatively suggesting that English *make* = 'feel' + 'because' and Chinese *shi* = 'be' + 'because'.

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