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 was praised by his teacher] made no boy angry.

(2) a. [cp That Bill had arrived] angered John.
   b. John was/felt/became angry [cp because Bill had arrived].

These properties are not found (in full) in superficially similar forms with non-experiencers & non-psych adjectives (non-Ψ-A) (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 was driving] made no boy 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 weilijiguantou turan chuxian] shi Zhangsan shifen gandong.
   Mary at emergency suddenly appear make Zhangsan very touched
   'That Mary appeared suddenly in (his) emergency made Zhangsan very touched.'
   b. [Ziji de pengyou zai weilijiguantou turan chuxian] shi meige nanhai 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 weilijiguantou 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 weilijiguantou 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-A (6a-b):

(6) a. [cp Ziji de gongzuo-liang turan da zeng] shi Lisi shifen manglu.
   self DE work-load suddenly big increase make Lisi very busy
   'That self$_i$’s workload suddenly increased made Lisi very busy.'
   b. [cp Ziji de gongzuo-liang da zeng] shi meige yuanguo 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 was praised by his teacher] made no boy 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] was driving] made no boy 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] patient canceled] made no doctor available/free/accessible.

Likewise, DP following make must denote an experiencer. (10) shows a non-experiencer (tool) with non-Ψ-A's; (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] edge was dull] made no tool 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 teacher was present] made speaking difficult for no boy.

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. [cp That fact] made John angry.
   b. *It made John angry that [cp that fact].
   c. [Pictures of himself] made speaking difficult for no boy.

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. [cp 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. [cp 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 (α), either null or overt (15a), nor does it allow a referential pro subject (15b):

(15) a. *α 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-A's (16a); but it allows this in all shi-causatives, including ones with non-experiencers & non-Ψ-A's (16b-d):

(16) a. [Zilij bei chengzan] shi meige nanaij dou hen gaoxing.
   self BEI praise make every boy DOU very happy
   'That self's praise made every boy very happy.'
   b. [cp Zilij de gongzuo-liang turan da zeng] shi Lisi shifen manglu.
   self DE work-load suddenly big increase make Lisi very busy
   'That self's workload suddenly increased made Lisi very busy.'
   c. [cp Zilij de gongzuo-liang da zeng] shi meige yuanronggou dou shifen manglu.
   self DE work-load big increase make every staff member DOU very busy
   'That self's workload suddenly increased made every staff member very busy.'
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 \( \theta \) EXP, or a true LV hosting assignment of \( \theta \) 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. [\( \theta \) That Bill had arrived] [those events] made John angry.

b.  

<table>
<thead>
<tr>
<th>Subject</th>
<th>English make-causatives</th>
<th>Chinese ( \text{shi} )-causatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backward binding</td>
<td>Only ( \Psi )-As</td>
<td>Always possible</td>
</tr>
</tbody>
</table>

(18) John feel angry from/because-of Bill's arrival/those events.

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

(19) a. __make NP \( \text{make} \) AP \( \text{make} \) CP
b. CP \( \text{make} \) NP \( \text{AP} \) ______
   (cf. That Bill had arrived made John angry)
c. It \( \text{make} \) NP CP AP
   (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 \( \text{make} \) AP \( \text{make} \) DP
b. DP \( \text{make} \) NP \( \text{AP} \) ______
   (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 happy [that he was praised]
   b. It made each boy envious [that the other was praised]
   c. It made John happy [that pictures of himself appeared on YouTube].

(22) a. [That he was praised] made no boy happy ___.
   b. [That the other was praised] made each boy envious ___.
   c. [That pictures of himself appeared on YouTube] made John happy ___.

(23) [Ziji de zhaopian bei chengzhan] shi meige nanhai dou hen gaoxing __.

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 hei was praised] made John happy [that no boy was present] 
    b. "[That the other was praised] made John happy [that each boy was away] 
    c. "[That pictures of herself appeared on YouTube] made John happy 
       [that Mary was out of town] 

(24) [Ziji de dianying de jiang de xiaoxi] shi Zhangsan hen gaoxing self DE movie DE experience very happy 
    [cp meige daoyan] 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/ze-i-jian shi/ZS turan diedao shi qita giuyuan dachiyijing. 
   Yes oh, pro/this-Cl 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] was driving] made no boy] responsible/culpable.

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

(26) ______ make NP AP CP/DP (English/Chinese) 
    CP/DP shi NP AP (English/Chinese) 
    It make NP AP CP (English only)

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

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/causative, 
like be (29). C-command still holds. Backward binding is predicted:

(28) a. [cp Ziji de gongzuoliang da zeng] shi Lisi shifen manjlu. 
    self DE work-load big increase make Lisi very busy 
    'That self]s workload increased made Lisi very busy.'
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 Ā-Vs. B&R's original tree for (30a) is (30b); (30c) is our update with a right-descending tree.

   b.    vP
       |  
       v  
   DP V VP
   Lisi V'  
   vP V
   shifen manglu
   shi zilii de gongzuo-liang da zeng
   (29) Lisi be busy from/because-of his workload increase.

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 anger 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 Ā-V variants with clausal arguments and expletives (33a,b) and account for their backward binding properties (33c,d).

(33) a. [cr That Mary was absent] angered John ___.
   b. It angered John [cp that Mary was absent].
   c. [cr That Mary sold pictures of him on eBay] angered every boy_i ___.
   d. It angered every boy_i [cp that Mary sold pictures of him_j on eBay].

3.2 Psych-Vs vs. Causatives in Chinese

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

(34) a. [cr Mali turan likai] shi Zhangsan hen fennu.
   Mary suddenly leave make Zhangsan very angry
   'That Mary left suddenly made Zhangsan (feel) very angry'
   b. [cr 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) Ā-Vs. Only EOs show backward binding (cf. (35b) vs. (36b)).

(35) a. Zhangsan gandong-le Lisi.
   Zhangsan touch-LE Lisi
   'Zhangsan touched Lisi.'
   b. [Zilii de pengyou de guanhuai] gandong-le Lisi_i.
   self DE friend DE care
   'The loving care of his, (own) friends touched Lisi_i.'
Support for the parallelism: Hooper & Thompson (1973) note that “root operations” normally forbidden in complement & adjunct CPs (41a) 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 her].
   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. 

(45) a. [zīlǐ de gōngzuo-liáng da zēng] shì Lǐsī shìfén mānglǔ.
   self DE work-load big increase make Lǐ very busy
   ‘That self’s workload had increased, made Lǐ very busy.’
   b. [zīlǐ shìfén mānglǔ] shì yǐnwei [zīlǐ de gōngzuo-liáng da zēng].
   Lǐ very busy be because self DE work-load big increase
   ‘That Lǐ was very busy because self’s workload had increased.’
   c. 

Chinese shì does not require an experiencer or Ψ-A. We suggest Chinese shì ‘make’ arises by incorporation of yīnweī ‘because’ into the copula shì ‘be’ (45b), (45c):

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 adjucnts, tentatively suggesting that English make = ‘feel’ + ‘because’ and Chinese shì = ‘be’ + ‘because’.

REFERENCES


