Comparatives combined with Focus Particles: The Case of Chinese HAI and HAISHI

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Introduction

Similarities: The semantics of $\text{HAI}_{\text{high}}$ and $\text{HAISHI}_{\text{high}}$

Distinctions: The Semantics of $\text{HAI}_{\text{low}}$ and of $\text{HAISHI}_{\text{low}}$

Conclusions
Introduction

- Focus particles (FPs) (such as HAI, HAISHI, …) in Mandarin are adverbs syntactically.

- Semantically, most of them are polysemous. Take HAI and HAISHI to illustrate this point clearly.

- To be specific, HAI carries a similar meaning to English *still* with an aspectual reading as well as a similar meaning to English *also* with an additive use (1).

(1) Zhangsan **HAI** bi Lisi gao.

    Zhangsan HAI than Lisi tall

    ‘Zhangsan is *still* taller than Lisi.’

    ‘*still* / ‘*also*’
Moreover, HAI can convey a **scalar reading** without the first two parts (2).

(2) Zhangsan  bi  Lisi  HAI  gao.

Zhangsan  than  Lisi  HAI  tall

‘Zhangsan is even taller than Lisi.’  

‘even’
As for HAISHI, it can either have an *aspectual reading*, similar to English *still* (3).

(3) (Wu-nian guo-qu le,) Zangsàn **HAISHI** bi Lisi gao.

(Five years passed away,) Zangsàn **HAISHI** than Lisi tall

‘(Five years later,) Zangsàn is *still* taller than Lisi.’
HAISHI can simply be a *concession* (4).

(4) (Bu-lun zen-yang, ) Zhangsan bi Lisi **HAISHI** gao san-gongfen.

(Anyway,) Zhangsan than Lisi **HAISHI** tall three-centimeter

‘(Anyway,) Zhangsan is taller than Lisi by three centimeters.’ *concession*
There exists a phenomenon that the meaning of HAI sometimes is the same as HAISHI but sometimes is not. Although they both are FPs, they will not be identical as shown in the above sample sentences.

Here comes one problem: What are the semantic distinctions between HAI and HAISHI in Chinese bi comparative?
This paper concerns the semantics of HAI and HAISHI in Chinese bi comparative (compare-comparative) (as illustrated in (1) to (4)), especially the semantic distinctions between HAI and HAISHI.

To enhance readability, this paper refers to the HAI in the case of (1) as $\text{HAI}_{\text{high}}$, in the case of (2) as $\text{HAI}_{\text{low}}$, in the case of (3) as $\text{HAISHI}_{\text{high}}$ and in the case of (4) as $\text{HAISHI}_{\text{low}}$.

Intuitively, there is an obvious distinction between (1) and (2), namely, positions of $\text{HAI}_{\text{high}}$ and $\text{HAI}_{\text{low}}$ in Chinese bi comparative are differential. That is to say, $\text{HAI}_{\text{high}}$ is outside the degree phrase while $\text{HAI}_{\text{low}}$ is part of the degree phrase, as the latter syntactically intervenes between the gradable predicate and the comparative individual (i.e., Lisi).

And the same difference appears between $\text{HAISHI}_{\text{high}}$ and $\text{HAISHI}_{\text{low}}$ in (3) and (4). Briefly, both $\text{HAI}_{\text{high}}$ in (1) and $\text{HAISHI}_{\text{high}}$ in (3) are outside of the degree phrase while $\text{HAI}_{\text{low}}$ in (2) and $\text{HAISHI}_{\text{low}}$ in (4) are part of the degree phrase.
Hence the previous problem transforms into two sub-problems:

(i) What the semantic distinctions between $\text{HAI}_{\text{high}}$ in (1) and $\text{HAISHI}_{\text{high}}$ in (3) are and

(ii) What the semantic distinctions between $\text{HAI}_{\text{low}}$ in (2) and $\text{HAISHI}_{\text{low}}$ in (4) are

That is, “What are the semantic distinctions between HAI and HAISHI in Chinese bi comparative?”. 
(5) (Wu-nian guo-qu le,) Zhangsan HAI_{high} bi Lisi gao.

(Wu-nian guo-qu le,) Zhangsan HAI than Lisi tall

‘(Five years later,) Zhangsan is still taller than Lisi.’

(6) (Wu-nian guo-qu le,) Zhangsan HAISHI_{high} bi Lisi gao.

(Five years passed away,) Zhangsan HAISHI than Lisi tall

‘(Five years later,) Zhangsan is still taller than Lisi.’

Briefly, what above shows that both HAI_{high} and HAISHI_{high} are similar to English still from the respect of aspectual reading, which behaves like a temporal operator.
Formalization

First, $D_i$ means a domain with instance $t$, i.e., $t \in D_i$.
(Here type $t$ is treated as type $s$ for the convenience of semantic combination).

Second, sentence $p$ is true or false at time $t$; and $p(t)$ means $p$ is true at $t$.

Third, $t' < t$ means that $t$ precedes $t'$ or $t'$ is before $t$. 
Final, the semantics of $\text{HAI}_{\text{high}}$ in (5) and $\text{HAISHI}_{\text{high}}$ in (6) as follows.

$$
\parallel \text{HAISHI}_{\text{high}} \parallel = \lambda t <s> . \lambda p <s, t> : \exists t' [t' < t \land p (t')] . p (t)
$$
Distinctions: The Semantics of HAI$_{low}$ and HAISHI$_{low}$

- **The Semantics of HAI$_{low}$**

  (7) Zhangsan jingran / shenzhi bi Lisi HAI$_{low}$ gao.

  Zhangsan unexpectedly /even than Lisi HAI tall

  ‘Zhangsan is even taller than Lisi.’

  (8) Zhangsan bi Lisi jingran / shenzhi * (HAI$_{low}$) gao.

  Zhangsan than Lisi unexpectedly/even (HAI) tall

  *(Intended of (8): ‘Zhangsan is even taller than Lisi.’/ ‘Zhangsan is taller than Lisi unexpectedly.’)*
Distinctions: The Semantics of $\text{HAI}_{\text{low}}$ and $\text{HAISHI}_{\text{low}}$

- As illustrated in (8), both *shenzhi* (even) and *jingran* (unexpectedly) in Mandarin are banned from following with $\text{HAI}_{\text{low}}$.

- In (7), *shenzhi* (even) or *jingran* (unexpectedly) occurs outside the *bi* comparative, then $\text{HAI}_{\text{low}}$ can be followed by *gao* (tall) (or even omitted) without changing the meaning of the sentence.

- On the contrary, once *shenzhi* (even) or *jingran* (unexpectedly) is added as part of the *bi* comparative in (8), the whole sentence becomes *ungrammatical*.

- The two empirical datas show that there are apparent *syntactic distinctions* between *shenzhi* (even), *jingran* (unexpectedly) and $\text{HAI}_{\text{low}}$, though all of them are in use with the sense of PFs.
More importantly, \( \text{HAI}_{\text{low}} \) in (7) only reinforce the unexpected meaning of sentence ‘Zhangsan is even taller than Lisi’.

It proves that the \( \text{HAI}_{\text{low}} \) contains the meaning of *even or unexpectedly*, showing that \( \text{HAI}_{\text{low}} \) conveys that the assertive content somehow *contravenes* the speaker’s expectation.

Therefore, this paper proposes that the sentence with \( \text{HAI}_{\text{low}} \), rather than \( \text{HAI}_{\text{high}} \), conveys that the assertive content somehow *contravenes* the speaker’s expectation, which is contrary to the view of Chen’s (2017).
In short, the key to HAI\textsubscript{low} of semantic interpretation lies in the scale of likelihood.

That is to say, the sentence ‘Zhangsan is taller than Lisi’ is less likely to be true than its alternatives (in the sense of Rooth 1992) under corresponding possible worlds.
Distinctions: The Semantics of $\text{HAI}_{\text{low}}$ and $\text{HAISHI}_{\text{low}}$

Formalization

- Assuming that $C$ (type $<st, t>$) represents the contextual restriction on the set of alternatives and $w$ (type $s$) represents the possible world; Proposition contained with $\text{HAI}_{\text{low}}$ as $\text{even}$, the prejacent $p$ is less likely to be true than its alternative $q$ in $w$, with respect to a given context $c$.

(9) Zhangsan bi Lisi $\text{HAI}_{\text{low}}$ gao.

Zhangsan than Lisi $\text{HAI}$ tall

‘Zhangsan is $\text{even}$ taller than Lisi.’
It is easy to follow that (i) Logical Form of (9):

$$[S \ [NP \ [N \ Zhangsan]] \ [DegP \ [PP \ [bi] \ [NP \ [N \ Lisi \ ]]] \ [DegP \ \text{HAI}_{\text{low}} \ [AP \ [A \ gao]]]]].$$

And (ii) the semantics of $\text{HAI}_{\text{low}}$ in (9) can be characterized as follows:

$$\| \text{HAI}_{\text{low}} \| = \lambda C_{st, t}. \lambda p_{s, t}. \lambda w_{s}.: \exists q[q \in C \land q = \neg p \land p <_{\text{likely}} q]. \ p (w)$$
The Semantics of HAISHI$_{low}$

(10) (Bu-lun zen-yang,) Zhangsan bi Lisi HAISHI$_{low}$ gao san-gongfen.

(Anyway,) Zhangsan than Lisi HAISHI tall three-centimeter

‘(Anyway,) Zhangsan is taller than Lisi by three centimeters.’

(11) (Bu-lun zen-yang,) *Zhangsan bi Lisi HAISHI$_{low}$ gao.

(Anyway,) Zhangsan than Lisi HAISHI tall
Distinctions: The Semantics of $\text{HAISHI}_\text{low}$ and $\text{HAISHI}_\text{low}$

(10) (Bu-lun zen-yang,) Zhangsan bi Lisi $\text{HAISHI}_\text{low}$ gao san-gongfen.

(Anyway,) Zhangsan than Lisi $\text{HAISHI}$ tall three-centimeter

‘(Anyway,) Zhangsan is taller than Lisi by three centimeters.’

✓ Syntactically, (10) is grammatical but (11) is not, which means that $\text{HAISHI}_\text{low}$ is banned followed by single gradable adjective (such as $\text{gao}$ in Mandarin).

✓ However, it becomes grammatical ended with a measure phrase, i.e., $\text{san}$-gongfen (three-centimeter) in (10).
Distinctions: The Semantics of $\text{HAI}_{\text{low}}$ and $\text{HAISHI}_{\text{low}}$

(10) (Bu-lun zen-yang,) Zhangsan bi Lisi $\text{HAISHI}_{\text{low}}$ gao san-gongfen.

(Anyway,) Zhangsan than Lisi $\text{HAISHI}_{\text{low}}$ tall three-centimeter

‘(Anyway,) Zhangsan is taller than Lisi by three centimeters.’

✓ Semantically, $\text{HAISHI}_{\text{low}}$ in (10) conveys the concessive meaning, which is completely different from $\text{HAISHI}_{\text{high}}$ in (6).

✓ Noting that (10) has a positive inference, that is to say, ‘Anyway (or no matter what happens), Zhangsan is taller than Lisi by three centimeters’.

✓ Thus, $\text{HAISHI}_{\text{low}}$ also can be explained with the respect of likelihood, which is similar to $\text{HAI}_{\text{low}}$ as *even* in this sense.
the semantics of HAISHI_{low} in (10) can be characterized as follows:

$$\|HAISHI_{low}\| = \lambda C_{<st, t>} . \lambda p_{<s, t>} . \lambda w_{<s>} . \forall q \ [(q \in C \land q = \neg p) \rightarrow (q <_{\text{likely}} p)]. \ p(w)$$

The prejacent $p$ is more likely to be true than every alternative $q$ in $w$, with respect to a given context $c$; When defined, the prejacent $p$ is true in $w$. 

Distinctions: The Semantics of HAI_{low} and HAISHI_{low}
This paper mainly investigates the semantics of HAI and HAISHI in Mandarin combined with Chinese *bi* comparative (compare-comparative), especially the semantic distinctions between HAI and HAISHI. Several empirical data are presented and discussed.
Conclusions

- **First of all**, syntactic distinctions between HAI and HAISHI in Mandarin are mainly lie in that
  - (i) Both HAI\textsubscript{high} and HAISHI\textsubscript{high} are outside of the degree phrase while and HAISHI\textsubscript{low} are part of the degree phrase;
  - (ii) HAISHI\textsubscript{low} is banned followed by single gradable adjective while HAI (whether HAI\textsubscript{high} or HAI\textsubscript{low}) can be either outside or part of the *bi* comparative.

- **Second**, semantic distinctions resulted by syntactic positions are apparent, namely, HAISHI\textsubscript{low} leads to a positive inference while HAI\textsubscript{low} does not, though they both are associated with scale of likelihood.

- **Final**, there is no semantic distinctions between HAI\textsubscript{high} and HAISHI\textsubscript{high} from the respect of aspectual reading, for both of them are similar to English *still*. 


Thank you

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