

In (2) the contexts with the perfective form of the main verb are presented. In the affirmative sentence speaker knows, that John didn't sing (F); in the sentence under negation he knows, that John sang (T). Thus, the implicative type of *побояться* (be_afraid_of.pf) is <F,T>.

- Aspect of the verb in the subordinate clause:

(3) Он стесняется (<F,T>) показать свои картины
 he feel_shy.prs.3sg show.pf.inf his paintings
He feels too shy to show his paintings.

(4) Он стесняется (<∅,T>) показывать свои картины
 he feel_shy.prs.3sg show.ipf.inf his paintings
He feels too shy to show his paintings.

- Time, person, negation, intonation contours etc.:

(5) Иван подозревает/(<∅,T>), что его обманули.
 John suspect.prs.3sg that him deceive.pst.3pl
John suspects that he was deceived.

(6) Иван подозревает\ (<T,T>), что его обманули.
 John suspect.prs.3sg that him deceive.pst.3pl
John suspects that he was deceived.

- Type of subordinate clause:

(7) Я вижу (<T,T>), как/что по дороге скачет всадник
 I see.prs.1sg that along road gallop.prs.3sg horseman
I see a horseman galloping along the road.

(8) Я вижу (<T,F>), что/*как ты недоволен
 I see.prs.1sg that you discontented
I see that you are discontented.

- Subjunctive mood, if-clause (these are the trivial means to cause the factive verb become non-factive).

2. Questions & possible answers:

- Do not the factors, mentioned above in the point 1, seem to carry certain implications universally, not just in the contexts with propositional verbs?

➤ In my view, the answer is yes. Let's have a look at some factors, named by Anna Zaliznyak:

- ✓ Aspect: perfective aspect seems to carry T/F implications, while imperfective aspect ∅ implication:

(9) Я сделал (T) первую и третью задачи.
 I do.pf.pst.1sg first and third exercise.pl
I did the first and the third exercises.

(10) Я делал (∅) первую и третью задачи.
 I do.ipf.pst.1sg first and third exercise.pl
I worked on the first and the third exercises.

(compare with examples (1-4)).

- ✓ Type of subordinate clause: supposed, that conjunction is ‘the activator of the denotative status of proposition’ (Kobozeva 1988), e.g. conjunction *как* (*that*) takes situations (events, which took place in the real world) (Arutjunova 1988) and thus always indicates the truthfulness of the conjoint proposition, whereas *что* (*that*) takes facts (events placed in our minds) (Arutjunova 1988).

(11) Я помню, как/что [мы встречались в старом парке]^{situation/fact}.
 I remember.pst.1sg that we meet.pst.1pl in old park
I remember that we met in the old park.

(12) Я помню, что/*как [местом нашей встречи был старый парк]^{fact/*situation}.
 I remember.prs.1sg that place our meeting was old park
I remember that the place of our meeting was the old park.

(compare with examples (7,8)).

- ✓ Phrasal stress normally marks rheme. Therefore if speaker believes the proposition to be true, phrasal stress switches to the beginning of the sentence and falls on the propositional verb (presumptive intonation contour), otherwise phrasal stress falls on the last element of the sentence (introductory intonation contour) [Paducheva 2004]:

(5') Иван подозревает/(<∅, T>), что его обманули. [introductory intonation contour]
 John suspect.prs.3sg that him deceive.pst.3pl
John suspects that he was deceived.

(6') Иван подозревает! (<T, T>), что его обманули. [presumptive intonation contour]
 John suspect.prs.3sg that him deceive.pst.3pl
John suspects that he was deceived.

- If we adopt the view on the implicative type as a property of verb, then in cases of the type change, which type should be attributed to the verb or at least what type can be called the main one?

- ✓ For example, the verb *думать* (*think*) was classified by Anna Zaliznyak as having <∅, ∅> type and not changing it in the context. I've analyzed 100 contexts taken from the Russian national corpus and the results were 83% of sentences of the type <T, F> (implicated by the first person and present time of the verb *думать* (*think*), 14% - of the type <F, T> (implicated by the first person and past time of the verb *думать* (*think*) and only 2% - of the <∅, ∅> type.

[Barbara Partee: But it may be dangerous to use 1st person sentences as the diagnostic case. Testing for factivity etc is normally done with 3rd person subject, because in the case of 1st person, a lot will follow from the pragmatics. It's much harder to distinguish 'attitude of the subject' from 'attitude of the speaker' when the speaker is also the subject. I suspect that 'dumat'' is indeed <∅, ∅> type SEMANTICALLY, and the appearance of <T, F> and <F, T> types is a pragmatic effect. It's especially unlikely that a verb would shift semantically from <T, F> to <F, T>, isn't it? Whereas the pragmatics of situations in which a speaker would say "I think that ..." vs. "I thought that ...", would give exactly such an effect].

- ✓ For instance, in case of strong correlation between some context factor and implicative type (as we've seen in (3-6)). (3) illustrates the fact that perfective aspect of subordinate infinitive strongly correlates

with IT <F,T> of the verb *стесняться* (*feel shy*), (4) - imperfective aspect of subordinate infinitive strongly correlates with IT <∅,T> of the verb *стесняться* (*feel shy*), (5) – introductive intonation contour strongly correlates with IT <∅,∅> of the verb *подозревать* (*suspect*), (6) – presumptive intonation contour strongly correlates with IT <∅,∅> of the verb *подозревать* (*suspect*).

- Implicative type reflects only implications about speaker's beliefs, but in some cases we can also figure out what speaker thinks of the addressee's and other person's beliefs.

Conclusions and suggestions to the points 1 and 2:

- ❖ The set of verbs presented above in table 1 does not seem homogeneous. Verbs like *лгать* (*lie*), *хотеть* (*want*) do not change their IT, IT of verbs like *стесняться* (*feel shy*) and *подозревать* (*suspect*) strongly depends on just one context factor (aspect/intonation contour/other), verbs which have ∅ truth value in their IT (e.g. *думать* *think*) undergo different changes of their IT in different contexts. Thus, some verbs have one IT, some – two, and some – several.
- ❖ Then, may be, we should regard IT not as a property of the verb, but as a valency of a propositional verb on truth-value implications satisfied by the components of meaning of the verb or by the context.
- ❖ Or, at least, it would be better to define ∅ truth value not as a neutral value of the truth parameter, but as a valency of a propositional verb on truth-value implications satisfied by the context.
- ❖ May be, speaker's beliefs about addressee's and other people's knowledge should be included into IT tuple.

Let's have a closer look at one group of propositional verbs, namely, the verbs of meaning and knowledge.

3. Provocative statement:

Propositional verbs of meaning and knowledge should be analyzed not at the sentence level, but at the discourse level, separate from the *at-issue* [Potts 2005] meaning of the sentence.

I propose to call them knowledge synchronizers. Knowledge Synchronizer (KS) is characterized by a tuple <Speaker TRUTH VALUE, Addressee TRUTH VALUE, Not_Interlocutor TRUTH VALUE>. The truth values are speaker-oriented and context-dependent. There are the following truth values: T for truth, F for false and ? for the valency on context implicatures. Conjunctions, which activate the denotative status of propositions (as we've seen in examples (7, 8, 11, 12)), conjoin KS and proposition. KSs help interlocutors to learn about each other's 'worlds' in order not to violate Gricean maxim of quantity, to be as informative as required and not make the contribution more informative than is required, and at the same time are related to the maxim of quality (I return to the problem below in point 5).

4. *Let's illustrate context-dependence of KSs analyzing the verb ДУМАТЬ (think).*

(13) Я думаю, что Маша приехала.
I think, that Mary arrived.

$$\left. \begin{array}{l} \text{[я думаю]} \\ \text{[I think]} \end{array} \right\} \left. \begin{array}{l} \langle S_?, A_?, NI_? \rangle \\ \text{present} \rightarrow T \\ I = S \rightarrow T \\ \langle S_T, A_?, NI_? \rangle \end{array} \right\} \begin{array}{l} \text{что [Маша приехала]} \\ \text{that [Mary arrived]} \end{array} \left. \begin{array}{l} \langle S_?, A_?, NI_? \rangle \\ \langle S_T, A_?, NI_? \rangle \end{array} \right\} = \begin{array}{l} \text{[Маша приехала]} \\ \text{[Mary arrived]} \end{array}$$

In (13) we see that present time and the first person of the verb *думать* (*think*) implicate the truthfulness of the proposition for the speaker.

(14) *Он думает, что Маша приехала.*
He thinks, that Mary arrived.

$$\left. \begin{array}{l} \text{[он думает]} \\ \text{[he thinks]} \end{array} \right\} \left. \begin{array}{l} \langle S_?, A_?, NI_? \rangle \\ \text{present} \rightarrow T \\ \text{he} = NI \\ \langle S_?, A_?, NI_T \rangle \end{array} \right\} \begin{array}{l} \text{что [Маша приехала]} \\ \text{that [Mary arrived]} \end{array} \left. \begin{array}{l} \langle S_?, A_?, NI_? \rangle \\ \langle S_?, A_?, NI_T \rangle \\ \langle S_F, A_F, NI_T \rangle \end{array} \right\} = \begin{array}{l} \text{[Маша приехала]} \\ \text{[Mary arrived]} \end{array}$$

↑
Gricean maxims, common knowledge

In (14) we see that present time of the verb *думать* (*think*) implicates the truthfulness of the proposition for the not_locutor according to speaker. If we take into account pragmatic factors, another interpretation ($\langle S_F, A_F, NI_T \rangle$) is also possible.

(15) *Я думал, что Маша приехала.*
I thought, that Mary arrived.

$$\left. \begin{array}{l} \text{[я думал]} \\ \text{[I thought]} \end{array} \right\} \left. \begin{array}{l} \langle S_?, A_?, NI_? \rangle \\ \text{past} \rightarrow F \\ I = S \rightarrow T \\ \langle S_T, A_?, NI_? \rangle \\ \langle S_F, A_?, NI_? \rangle \end{array} \right\} \begin{array}{l} \text{что [Маша приехала]} \\ \text{that [Mary arrived]} \end{array} \left. \begin{array}{l} \langle S_?, A_?, NI_? \rangle \\ \langle S_T, A_?, NI_? \rangle \\ \langle S_F, A_?, NI_? \rangle \end{array} \right\} = \begin{array}{l} \text{[Маша приехала]} \\ \text{[Mary arrived]} \end{array}$$

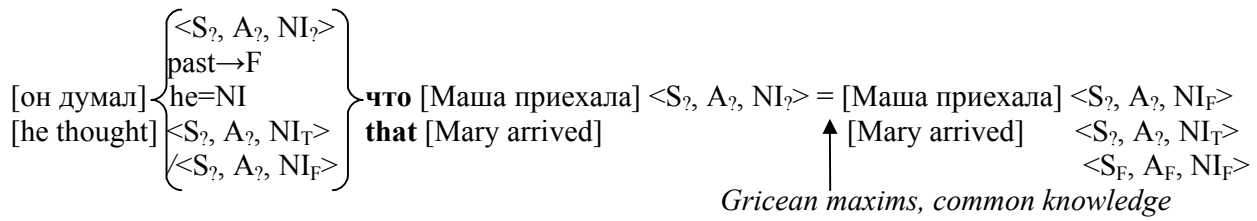
Or

$$\begin{array}{c} A_F \\ \downarrow \\ \text{Gricean maxims (be cooperative, be polite)} \\ \downarrow \\ \left. \begin{array}{l} \text{[я думал]} \\ \text{[I thought]} \end{array} \right\} \left. \begin{array}{l} \langle S_?, A_F, NI_? \rangle \\ \text{past} \rightarrow F \\ I = S \rightarrow T \\ \langle S_T, A_F, NI_? \rangle \end{array} \right\} \begin{array}{l} \text{что [Маша приехала]} \\ \text{that [Mary arrived]} \end{array} \left. \begin{array}{l} \langle S_?, A_?, NI_? \rangle \\ \langle S_T, A_F, NI_? \rangle \end{array} \right\} = \begin{array}{l} \text{[Маша приехала]} \\ \text{[Mary arrived]} \end{array} \end{array}$$

In (15) we see that the first person of the verb *думать* (*think*) implicates the truthfulness of the proposition for the speaker, whereas past tense of the verb *думать* (*think*) implicates, that the proposition is false. Thus, two variants are possible: $\langle S_T, A_?, NI_? \rangle$ and $\langle S_F, A_?, NI_? \rangle$. Speaker can also utter the sentence, when (s)he believes the proposition to be true, but tries to be polite and cooperative and do not directly contradict addressee ($\langle S_T, A_F, NI_? \rangle$).

(16) *Он думал, что Маша приехала.*

He thought, that Mary arrived.



In (16) we see that third person of the verb *думать* (*think*) implicates the truthfulness of the proposition for the not_locutor according to the speaker ($\langle S_?, A_?, NI_T \rangle$), whereas past tense the verb *думать* (*think*) implicates, that the proposition is false ($\langle S_?, A_?, NI_F \rangle$). If we take into account pragmatic factors, another interpretation ($\langle S_F, A_F, NI_F \rangle$) is also possible.

If the speaker or the addressee does not believe the proposition to be false and at least one person believes the proposition to be true, than it is added to the ‘local’ common knowledge of the interlocutors (‘local’ means, that it can be easily canceled within the following discourse). (Unlike e.g. *знать know*).

5. Double nature of KSs

In this point I’d like to comment further on the nature of Knowledge Synchronizers. Barbara Partee and Svetlana Toldova pointed out, that what I call Knowledge Synchronizers can be related to the evidentiality category [thanks!]. In my view, KSs are related to both the maxim of quantity (and prevent it from violation (the reason, why I called them KSs)) and the maxim of quality (and give information about the source of knowledge, direct/indirect information etc. (are related to the evidentiality)), and therefore act at the same time as KSs and as evidentiality markers.

Example (17) illustrates the function of KSs as means to prevent the maxim of quantity from violation:

(17) **A:** *Принц Гарри сейчас в Нью-Йорке. Prince Harry is in New York now.*

B: *Да, я знаю. Yes, I know.*

Suppose that the sentence uttered by **A** is *felicitous* [Potts 2006] then its quantity must be high (quantity is defined as $I(C) = -H(C) = p_1 \log_2 p_1 + \dots + p_n \log_2 p_n$, where $I(C)$ is information, $H(C)$ – entropy, p – probability, C – set of events). But suppose that **A** is wrong and **B** already possesses the knowledge, that Prince Harry is in NY now. Then if **B** doesn’t signal to **A**, that the latter is wrong in his beliefs about **B**’s ‘world’, then all the sentences pronounced by **A** afterwards on the subject would have 0 quantity. Thus, we see that KSs help interlocutors to be as informative as required.

Now let’s turn to the connection between KSs and evidentiality (18):

(18) **A:** *Где сейчас принц Гарри? Where is Prince Harry now?*

B₁: *Он сейчас в Америке. He is in America now. (= Я знаю, что он сейчас в Америке. I know, that he is in America now).*

B₂: *Я думаю, что он сейчас в Америке. I think, that he is in America now.*

...

Both answers are *felicitous* [Potts 2006], but there is a clear difference between them: choosing the first answer **B** must possess strong evidence, that it is true, whereas second answer could be based on both – weak evidence and/or general knowledge of **B**. Thus, we see, that KSs are related to the evidentiality.

Suggestions:

- ❖ The fact that KSs are related to both, the maxim of quantity and the maxim of quality, requires a formal explanation of the possible connection between the two maxims.
- ❖ May be, it would be better to say, that the described verbs as evidentiality markers (EvidM) are elements separate from *at-issue* meaning of the sentence and take on **propositions** (*[Я думаю]^{EvidM}, что [принц Гарри сейчас в Америке]. [I think]^{EvidM}, that [prince Harry is in America now].*); as KSs, they are elements separate from *at-issue* meaning of the sentence as well, but take on **utterances** (*{Where is prince Harry now?}_{utterance1} {[I think]^{KS}, that he is in America.}_{utterance2} {No way, he stayed in America till yesterday.}_{utterance3}; {Prince Harry is in NY now}_{utterance1} {[I know]^{KS}, (that he is in NY now).}_{utterance2}).*

References:

- Arutjunova 1988 – Арутюнова Н.Д. - Типы языковых значений: Оценка. Событие. Факт. М., 1988.
Kobozeva 1988 – Кобозева И.М. – Отрицание в предложениях с глаголами восприятия, мнения и знания// Логический анализ языка. Знание и мнение, М., 1988.
Paducheva 2004 – Падучева Е.В. - Динамические модели в семантике лексики. М., 2004.
Potts, Christopher 2005 – The Logic of Conventional Implicatures.
Potts, Christopher 2006 – How far can pragmatic mechanisms take us? Commentary on Hubert Truckenbrodt's 'On the semantic motivation of syntactic verb movement to C in German, for Theoretical Linguistics.
Zaliznyak 1988 – Зализняк Анна А. О понятии имплицативного типа (для глагола с пропозициональным актантом).