nandao-Qs: When Surprise Sparks Inquiry

1. Introduction. *Nandao* is a polar question particle in Mandarin, often analyzed as either a rhetorical adverb or a biased question word (Alleton 1988; Xu 2012, 2017). In this paper, I offer arguments in support of three empirical claims that clarify its discourse contribution: (1) *nandao*-questions (*nandao*-Qs) encode a positive evidential bias, (2) they do not however conventionally encode the speaker's epistemic bias, and (3) they require the presence of unexpected evidence in the interlocutors' immediate context. Based on new data, I challenge previous accounts (e.g., Xu 2017) and offer a new analysis of nandao. I argue that that *nandao*-Qs encode evidential signals and reflect the speaker's confrontation with unexpected contextual evidence, echoing Jing-Schmidt (2008). Drawing on insights from the Kernel-based framework from Von Fintel & Gillies (2010), this paper demonstrates that *nandao*-Qs involves an incompatible Kernel, representing an epistemic conflict that arises from either disbelief or unopinionatedness.

2. *nandao*-Qs are evidence-driven. The first empirical claim is that *nandao*-Qs conventionally encode a positive evidential bias (in the sense of Sudo 2013). Consider the minimally differing contexts in (1), which vary only in the contextual evidence available, and where the speaker has no prior epistemic bias. In context 1, the speaker can felicitously use a *nandao*-Q, but not in context 2. This contrast highlights that felicitous use of *nandao*-Qs requires the presence of positive contextual evidence. Moreover, as suggested by the infelicity arising in context 3, the prejacent cannot be directly settled by the contextual evidence (cf. *must* in Von Fintel & Gillies 2010).

(1) CONTEXT 1: A is sitting in a windowless room working. A doesn't know the weather. At 10, <u>B entered the room with a dripping raincoat.</u>
CONTEXT 2: A is sitting in a windowless room working. A doesn't know the weather. At 10, <u>B enters the room.</u>
CONTEXT 3: A doesn't know the weather. At 10, <u>A notices that it is raining outside</u> and B enters. Then A asks B:
Nandao waimian xiayu-le ma?
nandao outside fall.rain-PERF Y/N-Q
Aprox.'Is it raining outside?' **☑Context 1 # Context 2 # Context 3**

3. *nandao*-Qs do not encode epistemic bias. The second empirical claim is that *nandao*-Qs do not conventionally encode the speaker's epistemic bias. Consider two minimally differing contexts in (2) that vary only in the speaker's epistemic bias. The speaker can use a *nandao*-Q both when they have no bias (context 1) and when they have a negative bias (context 2). Moreover, one possible response from the addressee suggests that the speaker's bias remains inaccessible to the addressee, reinforcing that *nandao*-Qs do not conventionally convey the speaker's epistemic state.

(2) CONTEXT 1: A is sitting in a windowless room working. <u>A doesn't know the weather</u>. At 10, B enters the room with a dripping raincoat. Then A asks B:
CONTEXT 2: A is sitting in a windowless room working. <u>A believes it is not raining outside</u>. At 10, B enters the room with a dripping raincoat. Then A asks B:
A: Nandao waimian xiayu-le ma?
nandao outside fall.rain-PERF Y/N-Q
Aprox. 'Is is raining outside?'
B: meiyou-a. dengdeng ni yiwei xiayu-le ma?
No-A wait.wait you think fall.rain-PERF Y/N-Q
'No. Hey wait a minute, <u>you just thought it was raining</u>, right?'

☑Context 1 ☑Context 2

4. *nandao*-Qs require unexpectedness. The final empirical claim is that a felicitous use of *nandao*-Qs requires the contextual evidence to be unexpected to the speaker (i.e., the speaker must not have prior knowledge or a situation that provides evidence for the embedded proposition would occur.). Consider the examples in (3): in context 1, the event of Peter coming is not unexpected to the speaker, whereas in context 2, it is (in the sense of Van Rooy & Safarova 2003 that the evidence is of high utility). Hence, *nandao* requires evidence for the embedded proposition/prejacent to be unexpected at the context.

(3) CONTEXT 1: Peter is very fond of parties and he likes Sophie, who loves parties and invites him to attend with her. All of this is commonly known. A and B are talking at a party, wondering which of their friends are there. Upon seeing Peter, B says:
CONTEXT 2: Peter does not like parties (same as above)
nandao Sophie ye lai-le ma?
nandao Sophie also come-PERF Y/N-Q
Aprox. 'Did Sophie also come?' **# Context 1 ☑Context 2**

5. Analysis of *nandao*-Qs. Previous accounts, such as those by Xu (2012) and Xu (2017), argue that *nandao* conventionally encodes a speaker's negative epistemic bias, with the difference between rhetorical and information-seeking *nandao*-Q readings being the strength of this bias. However, these accounts only explain data like those in context 2 of (2) and do not account for the first two observations noted above. Here, I propose that the role of *nandao*, similar to a precondition particle (in the sense of Theiler 2017), is to make sense of an **unexpected** context by **learning the answer to the prejacent**. To encode the evidentiality component, I adopt the Kernel from Von Fintel & Gillies (2010), with minor revisions (see 4). Specifically, I set the upper bound of the speaker's knowledge to be U ($U \subseteq W$) in order to model the interaction between the Kernel and the speaker's other knowledge (referred to as "not-direct-but-not-inferred knowledge" in their term). Otherwise, the Kernel is still a place to contain the privileged information-namely, the contextual evidence from the immediate context and the propositions that it entails.

(4) **Definition of Kernel**:K is a kernel for $Base_K$, B_K is determined by the kernel K, only if:
i. K is a set of propositions (if $P \in K$ then $P \subseteq U$), $U \subseteq W$
ii. $B_K = \bigcap K$

The contribution of *nandao* is given in terms of its felicity conditions in (5). *Nandao* can only be used if the speaker encounters incompatibility between an updated Kernel and his rest knowledge ($K \cup [\![p]\!]^c \cap U = \emptyset$). To resolve this incompatibility, the speaker inquiries over a proposition ϕ that is entailed by the evidence p but also not directly settled in K. By confirming whether ϕ, the speaker resolves their epistemic conflict by either revising the Kernel or their beliefs to align the new evidence with their existing modal base U. *nandao*-Qs offer a linguistic strategy for the speaker to make sense of an updated Kernel after adding the contextual evidence, which causes incompatiblility with their existing beliefs, leading to concomitant belief revision.

(5) **Felicity condition of *nandao***: Fix a c-relevant kernel K:
i p is the direct evidence in K and ϕ is one proposition that p follows ($p \subseteq \phi, p, \phi \in K$)
ii K does not directly settle $[\![\phi?]\!]^c$.
iii $[\![\textit{nandao}\ \phi?]\!]^{c,w}$ is only defined iff $[\![p]\!]^c \in K$ but $K \cup [\![p]\!]^c \cap U = \emptyset$ and the speaker c_s needs to learns about $[\![\phi?]\!]^c$ to resolve the conflict.

In this paper, I also explore how the epistemic bias associated with *nandao*, as reported in previous work, can be derived through pragmatic reasoning (an idea already explored in Goodhue 2022; Rudin 2022) based on the information states (in the sense of Van Rooy & Safarova 2003). In addition, based on the semantics structured above, I account for its status as a polar question particle, leading to a potential unified account of *nandao*-Qs.

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