

Anchoring and causal clauses in scientific texts

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Frequency of *quod*, *quia*, *quoniam* in:

- Pliny the Elder, *Naturalis Historia* II (Astronomy)
- Seneca, *Naturales Quaestiones* VII (Comets)
- Vitruvius, *De Architectura* IX (Astrology and Astronomy)

	<i>NH</i> II	<i>NQ</i> VII	<i>De Arch.</i> IX
<i>quod</i>	3	0	14
<i>quia</i>	24	16	1
<i>quoniam</i>	32	0	1

Position of causal clauses in the corpus

	<i>quod</i>		<i>quia</i>		<i>quoniam</i>	
	qM	Mq	qM	Mq	qM	Mq
<i>NH</i> II	0	3	0	24	1	31
<i>NQ</i> VII	0	0	1	15	0	0
<i>De Arch.</i> IX	2	12	0	0	1	0

Position of causal clauses in a sample of authors (taken from Baños Baños 2014)

	<i>quod</i>		<i>quia</i>		<i>quoniam</i>	
	<u>qM</u>	<u>Mq</u>	<u>qM</u>	<u>Mq</u>	<u>qM</u>	<u>Mq</u>
Plautus	1	1	6	11	4	5
Terence	-	4	3	3	2	1
Lucretius	7	65	21	92	60	68
Cicero	9	81	22	18	39	7
Sallust	9	17	8	8	4	5
Seneca	-	57	28	195	8	40
<u>Columella</u>	-	-	0	24	1	18
<u>Plinius (Ep.)</u>	5	85	5	84	0	4
Suetonius	31	118	22	11	8	3
Tertullian	-	-	2	21	12	10
<u>Ammianus</u>	-	199	55	17	73	10
<i>Historia Augusta</i>	43	194	26	58	30	0

Quoniam as illocutionary disjunct in Pliny

NH II.55 quis enim haec cernens et statos siderum
(quoniam ita appellare placuit) labores non suae
necessitati mortales genitos ignoscat ?

(Indeed, looking at these things and at the labors
which have been assigned to the stars - since this
is the name which has been chosen for them - who
wouldn't forgive us, mortal beings, for our fate?)

Quoniam as attitudinal disjunct in Pliny

1. Evidence for stating the MC

NH II.111 Extra has causas non negauerim exsistere imbres uentosque, **quoniam** umidam a terra, alias uero propter uaporem fumidam exhalari caliginem certum est nubesque liquore egresso in sublime aut ex aere coacto in liquorem gigni.

English: But I would not deny, that there may exist showers and winds, independently of these causes, since it is certain that an exhalation proceeds from the earth, which is sometimes moist, and at other times, in consequence of the vapours, like dense smoke. and also, that clouds are formed, either from the fluid rising up on high, or from the air being compressed into a fluid.

Quoniam as attitudinal disjunct in Pliny

2. Ob id...quoniam?

NH II.234 marinas tardius gelari, celerius accendi; hieme mare calidius esse, autumnale salsius; omne oleo tranquillari, et ob id urinantes ore spargere, quoniam mitiget naturam asperam lucemque deportet;

English : that salt water freezes with more difficulty, and is more readily heated; that the sea is warmer in winter and more salt in the autumn; that everything is soothed by oil, and that this is the reason why divers send out small quantities of it from their mouths, because it smoothes any part which is rough and transmits the light to them;

Quoniam as attitudinal disjunct in Pliny

3. Lists of phenomena

NH II.218: Et interiora autem maria terris clauduntur ut portu; quibusdam tamen in locis spatiosior laxitas dicioni paret [...]; circa litora autem magis quam in alto deprehenduntur hi motus, quoniam et in corpore extrema pulsum uenarum, id est spiritus, magis sentiunt.

English : Inland seas are enclosed as in a harbor, but, in some parts of them, there is a more free space which obeys the influence. [...] But these motions are more felt about the shores than in the deep parts of the seas, as in the body the extremities of the veins feel the pulse, which is the vital spirit, more than the other parts.

Quia and the focus on the causal clause in Pliny

NH II.5 Formam eius in speciem orbis absoluti globatam esse nomen in primis et consensus in eo mortalium orbem appellantium, sed et argumenta rerum docent, **non solum quia** talis figura omnibus sui partibus uergit in sese ac sibi ipsa toleranda est seque includit et continet nullarum egens compagium nec finem aut initium ullis sui partibus sentiens, **nec quia** ad motum, quo subinde uerti mox adparebit, talis aptissima est, sed oculorum quoque **probatione**, quod convexus mediusque quacumque cernatur, cum id accidere in alia non possit figura.

(The fact that its shape is round and with the appearance of a perfect globe is shown first by the name and the consent of humans calling it 'globe', but also by the arguments of the facts, not only because this kind of shape converges in itself in all of its parts and has to be sustained by itself and includes all of itself, not needing a frame, and never meeting a beginning or an end in any of its parts, neither because it is very suited for the movement, by which it will clearly be led, but also because of the confirmation of our eyes, because it appears curved and in the center of the curve from any point we look at it, while this cannot happen in any other figure).

Quia and the focus on the causal clause in Pliny

NH II.217 Omnes autem aestus in oceano maiora integunt spatia nudantque quam in reliquo mari, **siue quia** totum in universitate animosius quam parte est, **siue quia** magnitudo aperta sideris uim laxe grassantis efficacius sentit, eandem angustiis arcentibus.

(All the tides in the Ocean cover and uncover bigger spaces than in the other seas, either because the entirety of the Ocean is wilder than one of its parts, or because an expanse feels more strongly the force of a star which moves forward in large spaces, while tiny spaces restrain it)

Quia in Seneca

NQ VII, VIII.3 quare ? quia non est illis perturbatus et inpotens cursus.

(Why ? Because their path is not irregular and uncontrolled)

NQ VII, IX.1 Praeterea humiliores illi cometae ob hoc, ut putat, non exeunt altius, quia plus terreni habent.

(Furthermore lower comets do not go higher because, as he thinks, they contain more of the terrestrial element)

Quia and the dialogical style in Seneca

NQ XIV.3 illud etiam nunc nemo dicere
audebit, mundum ferri per inmensum et
cadere quidem, sed non apparere an cadat,
quia praecipitatio eius aeterna est, nihil
habentis nouissimum in quod incurrat.

(Nobody would still dare to affirm this, that
the world moves in the Space and that it
actually falls, but that it doesn't appear to
fall because its fall is perpetual, since it
doesn't run across anything unexpected)

Quod in Vitruvius

De Arch. IX, II.4 quarto autem decumo die, cum in diametro spatio totius mundi absit ab sole, perficitur plena et oritur, cum sol sit ad occidentem, ideo quod totum spatium mundi distans consistit contra et impetu solis totius orbis in se recipit splendorem.

(On the 14th day, when it is diametrically opposite to the sun, separated by the whole sky, the moon becomes a full moon and rises, when the Sun is to the West, because, having a distance equal to the whole sky it stands at the opposite and receives on itself the brightness with the strength of the entire sun's disk)

Pliny and the process of anchoring

NH II.15 Res ardua uetustis nouitatem dare, nouis auctoritatem, obsoletis nitorem, obscuris lucem, fastiditis gratiam, dubiis fidem, omnibus uero naturam et naturae sua omnia.

(It is a difficult task to make old things look new, new discoveries reliable, forgotten notions attractive, unpleasant subjects enjoyable, uncertain information certain, in general it is difficult to reinstate the nature of everything and to return to nature all of its goods)