Queries and relational algebra

A company collects data concerning cycling races (one day races only). Every cyclist has a unique id, rides for a team and has a nationality. For every race, we have a unique id, name, year and length. When a cyclist finishes in a race, he or she earns points and his or hers time, position and the number of points is registered in CR. For races in the future, we have a different table.

C (*cid*, cname, gender, team, country)
CR (*cid, rid*, time, position, points)
R (*rid*, rname, year, length)

We have the following queries and expressions:

Q1: Which cyclists did win both the Ronde van Vlaanderen (RV) and Parijs-Roubaix (PR)?
Q2: Which cyclists finished in every edition of the Amstel-Goldrace (AG) since 2010?
Q3: In which race(s), only cyclists from Belgium finished on the third position since 2013?

E1: $\pi_{cname}(\sigma_{rname='RV' \wedge rname='PR'}(R) \bowtie \sigma_{position=1}(CR) \bowtie C)$

E2: $\pi_{cname}(\sigma_{rname='RV'}(R \bowtie \sigma_{position=1}(CR)) \bowtie C) \cup$
$\pi_{cname}(\sigma_{rname='PR'}(R \bowtie \sigma_{position=1}(CR)) \bowtie C)$

E3: $\pi_{cname}(\sigma_{rname='RV'}(R \bowtie \sigma_{position=1}(CR)) \bowtie C) \cap$
$\pi_{cname}(\sigma_{rname='PR'}(R \bowtie \sigma_{position=1}(CR)) \bowtie C)$

E4: $\pi_{cname}(\sigma_{year \geq 2010 \wedge rname='AG'}(R) \bowtie CR \bowtie C)$

E5: $\pi_{cname}(\sigma_{year \geq 2010 \wedge rname='AG'}(R \bowtie CR \bowtie C))$

E6: $\pi_{cname}(C \bowtie (\pi_{cid,rid}(CR) \div \pi_{rid}(\sigma_{year \geq 2010 \wedge rname='AG'}(R))))$

E7: $\pi_{rname}(\sigma_{country='Belgium'}(C) \bowtie \sigma_{position=3}(CR) \bowtie \sigma_{year \geq 2013}(R))$

E8: $\pi_{rname}(R) - \pi_{rname}(\sigma_{country='Belgium'}(C) \bowtie \pi_{rid,rid}(\sigma_{position=3}(CR)) \bowtie \sigma_{year \geq 2013}(R))$

E9: $\pi_{rname}(R) - \pi_{rname}(\sigma_{country \neq 'Belgium'}(C) \bowtie \pi_{rid,rid}(\sigma_{position=3}(CR)) \bowtie \sigma_{year \geq 2013}(R))$