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Interactive comment on “The boundary between the eastern and western domains of the Pyrenean Orogen: a Cenozoic triple junction zone in Iberia?” by S. Tavani

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Point 1 Referee: The main point I am concerned about is the lack of motivation of the presented work. In the introduction chapter, the author does not stress the main controversies or unsolved problems of the area that justify the undertaking of this work and the publication of its results. This problem remains in the background during the reading of the whole manuscript.....

Response: I thank the reviewer for this criticism. Presentation of unsolved problems of the study area will be moved from the discussion into the introduction and will be expanded.

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Point 2 Referee:, where it is unclear what part of the information is already published.

Response: Already published data (including seismic sections, geological cross sections and mesostructural data), interpretations, or ideas have been always accompanied by the corresponding reference. It will be further remarked which part of the information is unpublished.

Point 3 Referee: In addition, presentation and interpretation of data are often mixed and difficult to separate. As a consequence, after reading the whole manuscript the reader does not know to which extent this is a review paper or an original article.

Response: It is true that for two major structures (the Selaya Fault Zone and the Sierra de Cantabria Thrust Sheet) and for a couple of outcrops, the interpretation of data has been anticipated in the data presentation section. This was done to prevent an heavy discussion spanning from the single outcrop up to the plate scale. Anyway, the interpretation of the Selaya and Sierra de Cantabria faults will be moved in the discussion. Concerning the review/original article topic, I do not understand the aim of this criticism.

Point 4: Referee: In addition, there are some striking references that have not been cited. Specially one of the most cited works in the geological literature of Iberia: Alvaro, Capote and Vegas, 1979: "Un modelo de evolución geotectónica para la Cadena Celtibérica" *Acta Geológica Hispánica*. 14, 172-177. These authors define an aulacogen that narrows towards the NW and a "triple junction" can be easily inferred from this idea but to towards the SE of the Iberian Chain I have problems to understand the meaning of a triple junction in continental crust towards the NW. So, if these hypotheses are based on previous works it should be more clearly specified

Response: As pointed out by the reviewer, the paper by Alvaro et al deals with the relationships between the Betic and Iberian chains, and not with the junction between the Iberian and Pyrenean chains. Accordingly, there are no reasons for citing Alvaro

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et al, as well as there are no reasons for citing other striking papers dealing with other topics, areas or tectonics stages that are not essential to the purpose of this work.

Point 5 Referee: A similar observation can be made for most of the structural work presented in this manuscript, which is mostly unjustified by the presented data.

Response: Which part of the structural work is unjustified? Is actually this point an unnecessary repetition of point 1 or does “unjustified” mean that interpretations are not supported by data. If so, which interpretation is not supported?

Point 6 Referee: Another important question is the simplistic tectonic inversion proposed for the Pyrenees and the Iberian Chain (Fig. 21), since there are two periods of extension (Permian to Triassic and early Cretaceous) with different extensional axes.....

Response: Figure 21a presents the Cenozoic tectonic sketch map of the Iberian Peninsula, while figure 21b presents the position of Iberia at different times (all of them being post Permo-Triassic and post early Cretaceous), so I do not understand where the “simplistic tectonic inversion” is. More generally, in this work I have never addressed the topic of inversion tectonics in the Pyrenean Mountain Range and in the Iberian Chain, so I do not understand how something that is not presented can be simplistic. On the contrary, evidences of inversion tectonics are presented for the Cantabrian Domain, with detailed references to both Permo-Triassic and early Cretaceous rifting events.

Point 7 Referee:.....and a very important component of wrench tectonics during the Cenozoic inversion that have not been considered

Response: References for strike-slip component in the Iberian Chain have been provided, so the reason of this criticism is unclear. Maybe the referee refers to the Pyrenees, if it was the case it would be interesting to have some indications about the works presenting trustworthy geological evidences of important Cenozoic strike-slip

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movements in the Pyrenean mountain range.

Interactive comment on Solid Earth Discuss., 4, 507, 2012.

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